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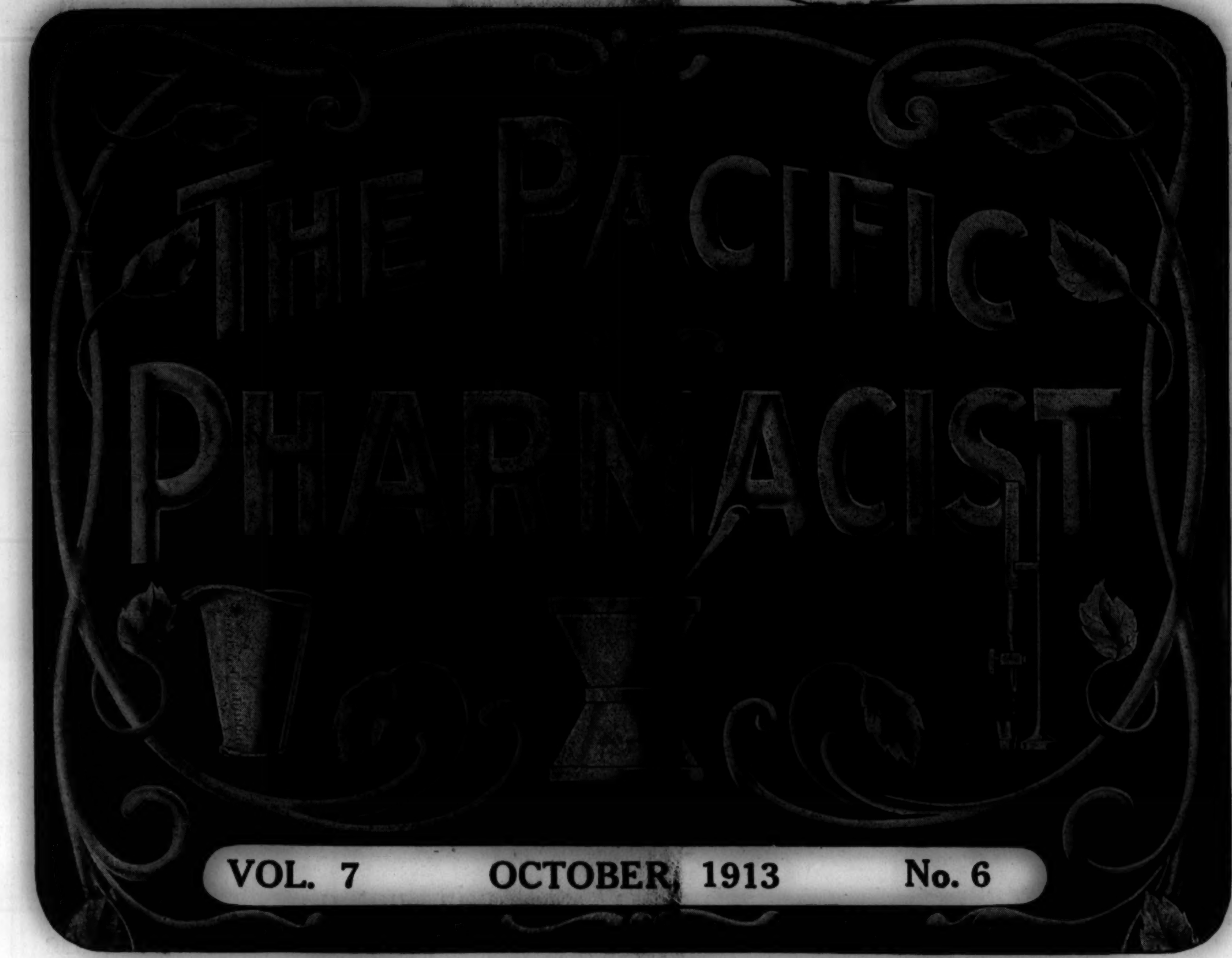

THE PACIFIC PHARMACIST

VOL. 7 OCTOBER 1913 No. 6

Published by GALEN PUBLISHING COMPANY

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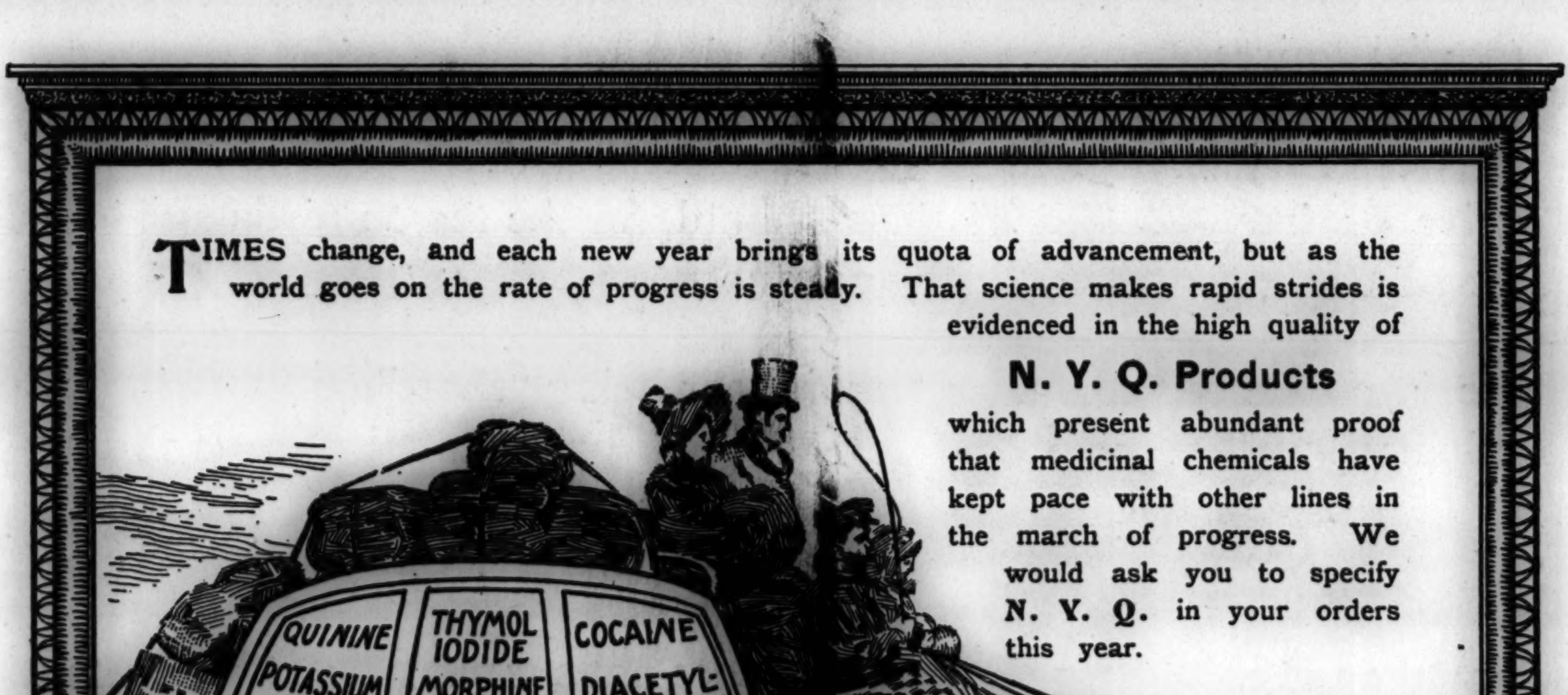

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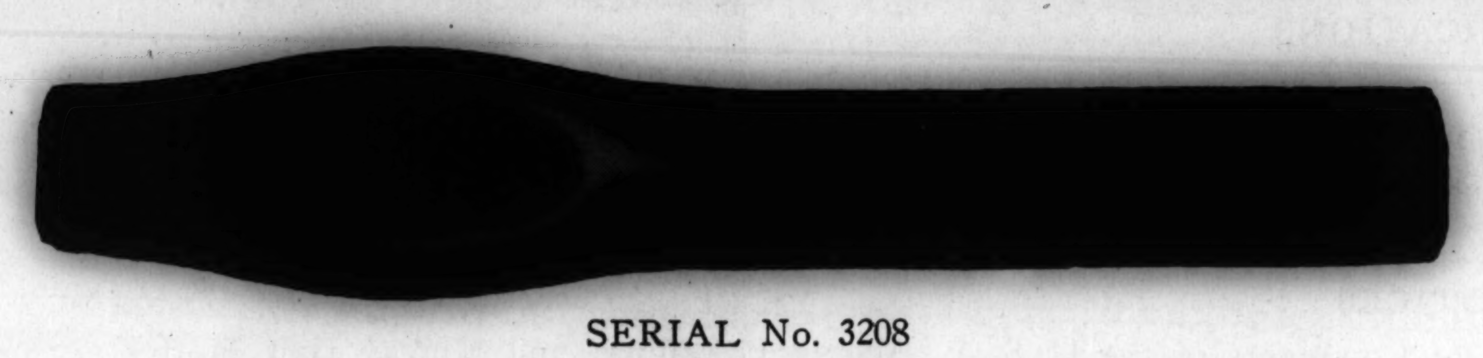

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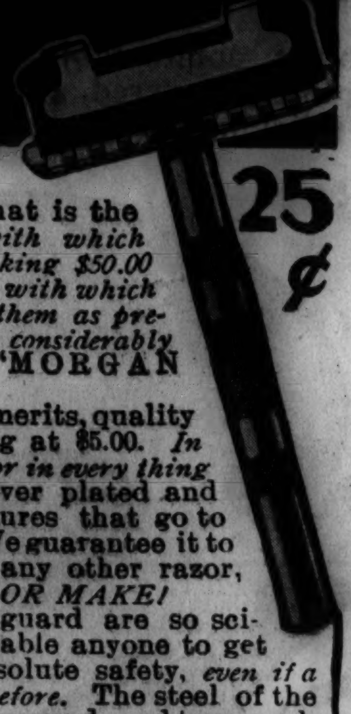

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Vol. 7. OCTOBER, 1913. No. 6.

Published on the Fifteenth Day of Each Month by the GALEN PUBLISHING COMPANY on behalf of the Pharmacists and the interests of the Drug Trade.

ALBERT SCHNEIDER, Editor-in-Chief

Associate Editors:

F. W. SEARBY H. B. CAREY J. H. DAWSON R. E. WHITE

Address all communications and make all checks and money orders payable to Galen Publishing Co., 723 Pacific Bldg., San Francisco, California.

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EDITORIALS

POWDERED DRUGS IN THE UNITED STATES. PHARMACOPOEIA. We are in receipt of the typewritten text of the animal and vegetable drugs for the ninth decennial revision of the United States Pharmacopoeia, prepared by the subcommittee on botany and pharmacognosy, of which Dr. Henry Kramer of the Philadelphia College of Pharmacy is the chairman. This report represents an enormous amount of work and we venture the guess that nearly all of the work was done by Dr. Kraemer himself.

We have time and again expressed our opinion on the importance of including descriptions of the powdered drugs in the Pharmacopoeia. We sincerely hope that the entire text as prepared by the committee will be included in the forthcoming revision of the U. S. P. Should this be done it would place the U. S. P. in the front rank of the world's pharmacopoeias and make it a really authoritative work of reference to the pharmacist, assuming that the rest of the text matter will be equally up to date. We cannot think of any plausible reason why this should not be done. What if it does make a goodly sized volume? Let us have it in three and more volumes if need be to make it an authoritative work of reference.

PHARMACEUTICAL BACTERIOLOGY. Within recent years the pharmacists of the United States and of Great Britain have shown great interest in the subject of bacteriology, evidenced by the fact that most of the pharmaceutical journals of these countries contain articles outlining the subject more or less fully or superficially, as the case may be. This comparatively new effort in pharmaceutical education is an unmistakable evidence of progress in pharmacy and is further proof that there is a cleancut professional side to pharmacy. No one can now claim to be an up-to-date qualified pharmacist who does not have a knowledge of the fundamental principles underlying the science of bacteriology. Without such knowledge the pharmacist cannot comprehend the nature of sera, of vaccines, of bacterins and their use in the treatment of disease, nor can he realize the significance and importance of the sterilization of medicamenta and of surgical supplies. The rapidly increasing demand for disinfectants and parasiticides makes a knowledge of the use of these substances a necessity. A knowledge of bacteriology will enable the pharmacist to comprehend the importance of cleanliness in and about the soda fountain and will enable him to overcome the annoying fermentation phenomena in the syrups and fruits used at the fountain.

The courses in pharmaceutical bacteriology as taught in Colleges of Pharmacy in order to be of any practical value, must be quite thorough and must be suited to the needs of the pharmacist. The articles referred to, appearing in the pharmaceutical journals, are not sufficiently complete to be of practical use. They do serve the purpose of calling attention to the importance of the subject and awakening an interest. A course in bacteriology should be compulsory in every College of Pharmacy and should include instruction in human parasitology and in public sanitation, in order that the pharmacist may be an aid to the physician and health officer in safeguarding the public health.

THE GERM OF INFANTILE PARALYSIS.

According to authentic reports, the primary cause of the terrible disease known as infantile paralysis has been found. This great discovery was made by Dr. Flexner, of the Rockefeller Institute, assisted by Dr. H. Noguchi, the eminent Japanese scientist. It was Noguchi who first succeeded in growing the germ of syphilis in artificial culture media. By following similar methods he succeeded in growing the germ of infantile paralysis in artificial media. The cultures were made in deep test tubes containing human blood serum. The top of the serum was covered with paraffin, observing, in fact, the strictest anaerobic conditions. The organisms appear as very minute granules or globules, yet large enough to be seen under the ordinary objectives. These bodies appear in a variety of arrangements, singly, double, in short chains and in aggregates. With the Giemsa stain they assume a reddish violet coloration.

Cultures of this organism have been injected into monkeys (these are the only animals susceptible to this disease), causing the characteristic manifestations of the disease. Afterwards the germ was again recovered from the animal dead of the disease and again cultured in artificial culture media, thus proving conclusively that it is the primary cause of the disease.

The virus of infantile paralysis is filterable, that is it will pass through clay filters, though it is not ultra-microscopic as above set forth. Apparently the germ enters the system *via* the air passages. From the lungs the organisms enter the lymphatics, finally reaching the envelopes of the brain and spinal cord *via* the olfactory nerve. Some authorities are of the opinion that humans are the only carriers, though it is highly probable that flies and other animals are also carriers. The common stable fly (*Stomoxys calcitrans*) especially has been looked upon as a carrier. Be that as it may, the disease is certainly transmissible from one person to another. It is now believed that those who are recovered from the disease may act as carriers for a considerable length of time.

The discovery of Dr. Noguchi and Dr. Flexner is of the greatest value to mankind. Having once found the cause of this dread disease, we are now in a fair way of finding the cure within a short period of time.

EUGENICS. For many years the scientists of the land have made a careful study of the eugenics of the oyster, of the hog, of the cabbage, of the horse, of the cow, and of microbes. Only very recently have we begun to give any serious attention to the subject as applied to the human animal. We may say that a sort of reaction has set in and as a result we hear of much that is absurd and most ridiculous and which has no practical bearing on the subject. A vast multitude of persons, perhaps impelled by sincere motives, but with more or less pronounced neurotic and neurasthenic tendencies, literally dive into the subject and through distortion and misrepresentation of facts cause ridicule and doubt to be cast upon the subject. The study of eugenics is not a matter of sentiment nor of unhealthy curiosity. Human eugenics should be studied and developed by the most highly qualified scientists of the land, not by neurasthenic moralists impelled by curiosity. Eugenics is not a matter of religion nor of morals. It is a matter of biology and of physiology.

Eugenics is the science which treats of the ways and means for the betterment of the offspring through a proper selection of parents. Its practical application means the gradual disappearance of the vast multitude of the mentally and morally defectives which we have with us and which the community must house and care for. Its application will gradually cause the disappearance of those weaklings who are addicted to the use of habit-forming drugs and alcoholic drinks, simply because a normal race does not crave these substances. Crime will be reduced to a minimum, because of the disappearance of criminal promptings and tendencies which will disappear with the mentally and morally defectives. Not that eugenics will make for an absolutely perfect race, free from all defects and shortcomings. Its rational application will most certainly bring about a very marked improvement in the race.

Let the study and the teaching of eugenics be placed in the hands of those who are qualified.

RELIGIOUS HEALTH EXTENSION WORK.

The genesis of medicine like most of the liberal professions occurred as an offshoot of religion. The influence of the Mosaic laws relating to diet and hygiene is manifest in part, at least, in the superior expectancy of life of the Jews. The precepts of Mohammed preach constant cleanliness. The laws of Buddha advocated vegetarianism and total abstinence.

Despite the religious authority for instruction in hygiene, the function of the Church in recent years has been construed as relating principally to ethics, morals, and dogma. The pendulum is again swinging back into the hygienic arc. A new movement has seized the attention of religious leaders. The struggle for social welfare demands attention to physical welfare and to-day religious organizations are actively engaged in health propaganda.

The Presbyterian Board of Home Missions affords lectures on tuberculosis, insanity, food reform, and the care of the human body. The Methodist Federation for Social Service seeks "to prevent all preventable diseases by spreading the knowledge of the methods of prevention and by forcing individual responsibility for the health of the community." The Council of Jewish Women in conducting an organized educational program directed against unnecessary blindness, tuberculosis and the lack of sex hygiene. The International Committee of the Young Men's Christian Association, is working through its Department of Physical Training, placing particular stress upon personal hygiene. Health leagues, health service and health institutes are factors in their activities. The Young Women's Christian Association is spreading education through talks and conferences on the value of exercise, rest, diet and dress, with discussions on personal, industrial and community hygiene.

Communal health is a basic stone in the construction of a lasting superstructure of communal welfare. The churches and their allied organizations are directing their energies in a rational direction for the welfare of parishioners. Church clinics, church medical societies, church first aid stations, church nurses, all represent modern expressions of the spirit of the founders of the great religions of the world. "Love thy neighbor as thyself" is but another conception of the idea "No man liveth unto himself and no man dieth unto himself."—Editorial in Med. Rev. of Reviews.

THE NEED OF BETTER VENTILATION.

The ventilation of public meeting rooms has been deplorably neglected, but it is a great satisfaction to notice signs of an awakening of public health officers. Architects have been so culpable that it really seems as though they should be required to obtain sanitary approval of plans of proposed buildings. Nor should any existing buildings be used for meetings unless approved means of ventilation are installed. The worst rooms are often the public libraries—the very places where the best ventilation is essential. Not infrequently one enters a fine marble pile of beautiful architecture, and is greeted by a foul, sickening odor which not only prevents mental activity, but which gives the reader a severe headache and other symptoms of poisoning. The sour odor of unclean school children is so overpowering that ventilation must be doubly effective, yet school rooms not infrequently are so poorly aired that there is a positive stench. No wonder the teachers have headaches and get 'nerves,' and the children catch about every known infection. We are quite sure that if the ventilation is so perfect that no odor is noticeable upon entering the room from outdoors, we will find not only tremendous reduction of actual illness of the little ones, but also a wonderful improvement in general health and physique. The air conditions often found are amply sufficient to cause the pasty complexions and frail physiques now too common. There would be less need of outdoor school rooms if architects would take "outdoors" indoors—that is, make the room air as fresh as out-doors, and prevent overheating.—Interstate Med. Journ.

TEN DEMANDMENTS.

By the Boss.

Rule I—Don't lie—it wastes my time and yours. I'm sure to catch you in the end, and that's the wrong end.

Rule II—Watch your work, not the clock. A long day's work makes a long day short, and a short day's work makes my face long.

Rule III—Give me more than I expect and I'll pay you more than you expect. I can afford to increase your pay if you increase my profit.

Rule IV—You owe so much to yourself that you can't afford to owe anybody else. Keep out of debt or keep out of my shop.

Rule V—Dishonesty is never accident. Good men, like good women, can see temptation when they meet it.

Rule VI—Mind your own business and in time you'll have a business of your own to mind.

Rule VII—Don't do anything which hurts your self-respect. The employee who is willing to steal for me is capable of stealing from me.

Rule VIII—It's none of my business what you do at night. But if dissipation affects what you do the next day, and you do half as much as I demand, you'll last half as long as you hoped.

Rule IX—Don't tell me what I'd like to hear, but what I ought to hear. I don't want a valet to my vanity, but I need one for my money.

Rule X—Don't kick if I kick—if you're worth while correcting you're worth while keeping. I don't waste time cutting specks out of rotten apples.—Practical Druggist.

COMMUNICATIONS.

AN OUTLINE OF COURSES OF INSTRUCTION IN BOTANY, PHARMACOGNOSY, MATERIA MEDICA, PHYSIOLOGY, TOXICOLOGY AND BACTERIOLOGY IN COLLEGES OF PHARMACY.

By ALBERT SCHNEIDER, M. D., Ph. D.

(Continued from Page 124.)

12. Mendel's law in hybridization.
    a. Dominant factors or variants.
    b. Recessive variants.
    c. Hybridization formulae.
13. Examples of well-known cultural varieties.
    a. Loganberry. Roses. Grapes. Seedless apple. Seedless grapes. Nectarine.
    b. Wonderberry. Potatoes. Cabbage.
    c. Spineless cacti. Wheat. Corn.

XIII. THE BIOLOGICAL COMMUNITY OF ORGANISMS. (SYMBIOSIS.)

I. Introduction.
  1. Intimate relationship of Organisms.
  2. Difference between associations and symbiosis.
  3. Conditions favoring symbiosis (motility and immobility).
  4. More remote associations. Examples.—Cat-clover example. Trees and animals in forest.
  5. Less remote associations. Examples.—Flowers and insects.

II. Definition of Symbiosis. Define symbionts.

III. Origin of Symbiosis. Evolutional factors.
  1. Competition for space.
  2. Struggle for existence.
  3. Symbiosis not a primary tendency or condition.
  4. Origin of parasitism. Double or mutual parasitism.

IV. Unclassified Symbioid phenomena.
  1. Mimicry.
     Tree-frogs, birds, insects (walking sticks, cicadas), animals and plants of tropics. Green snakes.
  2. Mutual adaptation of plants and insects.
     Fertilization, pollination.
  3. Myrmecophilous plants.
     Warlike ants in hollow stems of Cecropia, in thorns of Acacia. The enemies associated with fungi.
  4. Plant lice and ants with plants.
  5. Seed and mother plant.
  6. Crab (Stenorhynchus) with algae, sponges and hydroids upon back, as a protection.
  7. Crab (Inachus) carries a zoologic and botanic garden upon its back; another species is entirely hidden by the plant growth to enable it to approach its prey and also to hide from its enemies.
  8. Hermit crab—in snail shells in which it lives and moves about.
  9. Coleopter—**Necrophilus subterraneans,** attacks live snails and moves into the emptied shell.
  10. The Crayfish **Phronima sedentaria** eats certain species of mollusks and moves into the emptied shell and paddles it about.
  11. Clinging Plants. Dodder. Mistletoe. Tumors.
  12. Wasps.—Wasps and Caterpillars.

V. Classifications of Symbioses.
  1. Incipient or indifferent symbioses. Explain.
     a. Accidental Symbiosis. Algae in greenhouses, bacteria on plants and animals, algae upon plants. Climbing plants in incipient stages of symbiosis, etc.
     b. Contingent symbiosis. (Raumparasitismus.) Bacterial flora of digestive tracts. Algae upon lichens; **Hydra viridis** upon water lily and upon Lemna. Euglena, etc., upon cyclops, snails, clams. Snails and sponges. Some sponges and hydroids prefer to live upon plants, others upon animals.
  2. Antagonistic Symbiosis.
     a. Incipient parasitism—Nostoc upon lower plants.
     b. Mutual parasitism. Bacteria and white blood corpuscles in pus formation.
     c. Antagonistic symbiosis—Parasitism. Its wide occurrence. Fungi. Origin of the Mistletoe, Dodder, Indian Pipe, Amoeba of malaria. Seeds upon mother plants.
     d. Saprophytism, origin and relationship to parasitism. Obligative and facultative saprophytes and parasites.
  3. Mutualistic Symbiosis.
     a. Nutricism or one-sided mutualism. Mycorrhiza of Cupuliferae, Oaks. Nostoc with **Cycas revoluta.** Cray-

fish **Pagurus** with **Actinia;** Actinia alone is benefited.

b. Mutualism. (DeBary, Reinke, Klebs, van Beneden and others.) Root tubercles of Leguminosae. Bacteria on roots of other plants. Ants and trees—Myrmicophilous plants. Insectivorous plants. Polyp **Actinia prehensa** attached to claws of crustacean. Algae with Actinia.

c. Individualism. Semi-individualism. Algae with sloth and ant-eaters, rhizobia with clover. Perhaps nostoc with **Cycas revoluta;** algae in lower lichens. Bacteria in intestinal tract. Complete Individualism. Higher Lichens. Algae with **Hydra viridis.** Cell-theories.

4. Compound symbiosis. Complex symbiosis. Mutualism with parasitism. Parasitic worms in intestinal canal of birds occur in twos. In disease, on roots of plants, etc.

5. Complex symbiosis. Examples.
   a. Case of the hawthorn and its symbionts.
   b. Case of the ants and aphides and fungi.
   c. Examples of the forest and forest animals.

XIV. GRAFTING.

a. Scion or graft and stock.
b. The importance of sharp knife.
c. The importance of accurate approximation of the cambial tissues of scion and stock.
d. Mechanical protection.
e. Protection against evaporation.
f. Advantages of grafting.
g. Influence of stock on scion.
h. Biologic relationship between scion and stock. Extremes in stock and scion.
i. Graft freaks—Potato and tomato. Multiplicity of fruits, scions on one stock.

Kinds or types of grafting.
  Cleft grafting.
  Saddle grafting.
  Whip or tongue grafting.
  Splice grafting.
  Crown or rind grafting.
  Bud grafting.
  Natural grafting. Spontaneous or accidental grafting.

Propagation from cuttings.
  Stems. The phytomer.
  Rhizomes. Runners. Shoots.
  Tubers. Leaves. Bark.

Layering.

XV. CLASSIFICATION OF PLANTS TAXONOMY.

The object of classification.

Systems of classification.
  a. Artificial systems of classification.
  b. Natural systems of classification.
  c. Binomial system of naming.
  d. Common names.
  e. Synonomy—Synonyms.
  f. Modern scientific names—Old scientific names.
  g. Culture variety names.
  h. Commercial names.

Natural System as based upon Natural Descent.

Growth and Development of the Natural System.
  a. Phylogeny and Ontogeny—Evolution.
  b. Species and varieties.
  c. Culture varieties.
    Hybridization.
    Artificial selection.
    Morphology and physiology.
    Life history of the individual plant.
    Constant and variable characters.
    Distribution—horizontal and vertical.
    Interrelation of plants, etc., etc.

The Subdivisions of the Natural System.
  a. The Order, Family, Genus, Species, Variety.
  b. Illogical Subdivisions.

Systematists of the Old School—Esenbeck, Rafinesque.

Modern Tendency among Systematists.

A System as representing the Ultimatum of Knowledge.

Who should do systematic work.

Systematists for Pleasure.

XVI. FORESTRY.

General Forestry.
  International.
  National.

State Forestry. Relationship to National.

Field or Boundary Forestry—Protective Forestry.

Park Forestry.
  Purpose—Decoration and recreation.
  Scope—National, Communal, Private.

Farm Yard Forestry—Protective and Economic.

Forests. Distribution, ownership, etc.
  Primitive forests and primitive man.
  Dissemination of trees.
  Association of trees.
  Association of trees with animals, and with other plants.
  Protection against floods.
  Influence on climate.

Protective Forestry—Man and Animals.

Utilitarian Forestry.
  Conservation.
  Economic utilization.

Deforestation—By man and by fire.

- Reforestation.
- Lumbering.
  - Destructive—Legal control.
  - Economic—Scientific.
- Forest Fires.
  - Damage by forest fires.
  - Protection against fire.
  - Forest rangers.
- Landscape Forestry.
- Tree Diseases.

XVII. PLANT DISEASES. PLANT PATHOLOGY.

- **Plant Diseases** in their Relationship to Soil and Climate.
- Plant Products found in the soil which modify productiveness, irrespective of fertilizers.
- Toxins, or poisons, in the soil secreted or formed by plants, which are injurious to the plants themselves and to closely related species and varieties.
- Disease resisting plants the result of selection, crossing and cultivation.
  - How produced.
  - Does the disease resisting variety have the other necessary or desirable qualities?
- Methods of immunizing seeds, seedlings and plants against disease.
  - The successful possibility indicated by the fact that disease resisting varieties are being created.
  - Natural and diseased plants occur side by side. How explained?
- Physiological disturbances in growth.
  - Atavistic variations or reversions.
  - Fasciation. Freaks.
- Diseases due to chemicals. Gases.
- Pathological conditions due to soil and climate.
  - Blight (of sugar beets). Sunburn, etc.
- Diseases due to Fungi. (Bacteria.)
  - Rots—Fruit rot, root rot, wood rot, etc.
  - Wood and timber diseases.
  - Blights—of pear, apple, etc.
  - Rusts, amuts.
  - Galls.
- Diseases due to insects.
  - Plant lice—roots, leaves, stems.
  - Vermes.
  - Larvae of insects.
  - Tree and leaf borers.
  - Galls—of many plants, as oak galls, willow galls.
  - Scale—Moths.
  - Bark borers.
- Methods of preventing disease.
- Methods of destroying disease organisms on plants.
  - Use of Insecticides.
    - Spraying.
    - Dusting.
    - Fumigating.
- Methods of investigating plant disease.
- The California Insecticide Law.

Supplementary.—Reviews and oral as well as written quizzes. Special reading. Lantern slides. Four or five botanical excursions. Each student will also be required to make an ecological study of twenty-five field plants and to collect, identify and mount twenty-five herbarium specimens. Middle term, and term and a final examination.

Plant Histology—Laboratory Botany.—Essentially a laboratory course, of two laboratory periods each week (each period two hours in duration) beginning immediately upon the completion of the course in Microscopy and Micro-technique and extending throughout the remainder of the first or junior year. Each student is supplied with a compound microscope, but the following materials he must supply for himself: Pocket lens, section knife, covers, slides, etc., etc. Plant types will be studied macroscopically as well as microscopically. In-so-far as possible these types will be taken up in a phylogenetic sequence.

Students will be required to make drawings of the structures examined. With the exception of certain slides illustrating cell-division, nuclear division (mitosis, karyokinesis) and embryology, all sections for microscopic examination are made by the students themselves.

In this course the major attention is given to morphology (macroscopic and microscopic) with just enough of physiology to make clear the structural characteristics.

The course is preparatory to the course in pharmacognosy which is begun in the second year. The following is an outline of work. All details are omitted. The instructor in charge must, at the beginning of each period, give a detailed explanation of the work to be done, supplementing this with the necessary blackboard outline and drawings, wall charts, botanical models, etc.

VEGETABLE HISTOLOGY.

I. THE CELL.—PREPARED SLIDES.

1. Cell-type.
   a. Cell-wall.
   b. Plasm and plasmic strands.
   c. Nucleus, chromatin, achromatin.
   d. Centrospheres.
2. Karyokinesis. Typical stages.

II. ALGAE.—FROM POOLS, PONDS, STREAMS.

1. Blue green.
   a. Glaeocapsa.
   b. Nostoc.
   c. Oscillaria.
2. Green algae.
   a. Pleurococcus viridis.
   b. Diatoms.
   c. Desmids.
   d. Spirogyra. Euglena. Volvox.
   e. Zygnema.
   f. Cladophora.

III. FUNGI.—FROM TREES, GRASSES, HERBS, SHRUBS.

1. Bacteria—form types.
2. Symbiotic bacteria.
3. Yeast cells.
4. Vinegar organisms.
5. Hyphal fungi—Mycelium from spore.
   a. Penicillum.
   b. Basidiomycetes.
   c. Ascomycetes.

IV. LICHENS.—FROM TREES AND ROCKS.

1. Section of thallus.
2. Section of apothecium.
3. Algal types.
4. Haustoria and algae.
5. Soralia. Rhizoids. Etc.

V. LIVERWORTS.—ALTERNATION OF GENERATIONS.

1. Section of thallus. Stomata. Rhizoids.
2. Archegonia and antheridia.

VI. MOSS.

1. Sections of stem (longitudinal and transverse) with rhizoids.
2. Leaf.
   a. Vertical View—Middle cells.
   b. Transverse section.
3. Archegonia and antheridia.
4. Spores.
5. Protonema.
6. Division of egg-cell.

VII. FERN.

1. Gametophyte with archegonia and antheridia.
2. Developing sporophyte attached to the gametophyte.
3. Histology of leaf stalk.
4. Histology of leaf.
5. Sporangium. Spores.

VIII. GRASS—**ZEA MAYS.**

1. Histology of stem and leaves.
2. Vascular bundles.
3. Parenchymatous tissue.
4. Histology of cob.
6. Style (corn silk) and pollen grains.

IX. PINE.

1. Bark—Transverse and longitudinal sections.
2. Wood—Transverse and longitudinal sections.
3. Leaf—Transverse and epidermal sections.

X. CUCUMBER STEM.

1. Vascular bundles.
2. Sieve tubes.

XI. FIG LEAF—EPIDERMAL AND TRANSVERSE SECTIONS.

1. Epidermis—Surface and profile view.
2. Hypoderm—Cystoliths.
3. Leaf parenchyma.

XII. OLIVE LEAF—EPIDERMAL AND TRANSVERSE SECTIONS.

1. Trichomes.
2. Epidermis.
3. Mechanical tissue.
4. Leaf parenchyma.

XIII. EUCALYPTUS LEAF.

1. Dorsiventral form.
2. Isolateral form.
   a. Epidermis (cuticle).
   b. Leaf parenchyma.

XIV. PHYLLODE AND LEAF OF ACACIA.

1. Epidermis.
2. Parenchyma.
3. Comparison of phyllode and leaf.

XV. PLANTS TO ILLUSTRATE TISSUE TYPES.

1. Bark—Cascara, cinchona, willow.
2. Wood—Oak, poplar, guaiac.
3. Tracheids—Pine.
4. Nut-shells—Walnut, peanut, coco, olive pit.
5. Seed Coat of pumpkin seed, of bean, of tomato seed.
6. Seeds—comparative study.

XVI. TRICHOMES OR HAIR CELLS.

Simple, single-celled and many-celled.
Aggregate or stellate.
Branching.
Glandular.
Multicellular.
  True multicellular.
  False multicellular (Emergencies).
Unusual trichomes.
  T-shaped.
  Shield-shaped, etc.

XVII. EPIDERMIS—SIZE, FORM AND CONTENTS OF CELLS.

Cuticle.
Vertical cell-walls.
Stomata.
  Guard cells.
  Nebenzellen (Neighboring cells).
Hypoderm.

Collenchyma.
  Parenchymatous.
  Bast-like.
Palisade tissue or cells.
  Of leaves.
  Of seed coat, etc.

XVIII. BAST CELLS OR FIBRES.

Typical.
Sclerenchymatous.
Branching.

XIX. IDERENCHYMA CELLS OR STONE CELLS.

Typical.
Elongated or bast-like.
Branching.

XX. WOOD FIBRES OR WOOD CELLS.

Tracheids.
  Typical.
  Bast-like.

XXI. DUCTS OR VESSELS.

Porous.
Scalariform.
Reticulate.
Spiral.
Annular.

XXII. PARENCHYMATOUS TISSUE.

Parenchyma proper.
Pith.
Bark parenchyma.
Seed endosperm.
Fruit pulp.
Pericarp parenchyma.
Leaf parenchyma, etc.

XXIII. SIEVE TUBES.

Crystal bearing fibers.
Laticiferous ducts.
Glandular cells.

XXIV. ATYPICAL CELLS AND TISSUES.

Phloem—conducting cells.
Cambium.
Cork cambium or phellogen.
Apical tissues and cells.

Supplementary Laboratory Work in Plant Histology. A Review.—For review purposes and to prepare the student for more efficient laboratory work in pharmacognosy, the following special study of cell-forms, cell-contents and tissues is recommended. The time required for the work is from three to four weeks and the course may be given either at the close of the first year or at the beginning of the second year of the regular two-year course. The better results are obtained when the course is given at the beginning of the second year, though it may crowd the second year's work considerably.

The student should be required to make careful drawings of the various types of cell-forms, tissue elements and cell-contents studied. Careful attention to the details as outlined will make the microscopical examination of vegetable drugs (crude as well as powdered) much easier.

Trichomes or Hair Cells.—(These belong to the epidermal tissue). The following are the principal kinds:

Simple: Single-celled; varying from very short to very long, walls thick or thin, smooth or rough, warty, etc., as cotton, in tea leaves, sage, wheat, rye, apricot, quince, peach, strawberry, raspberry, loganberry, etc.

Many-celled: (usually two to five-celled); varying from short to very long; cell-walls usually quite thin; smooth, roughened, warty, etc., as in digitalis, aconite, mints, tobacco, belladonna, and in many other vegetable substances.

Aggregate or Stellate: As in mallows, castanea, hamamelis.

Branching: Typically developed in mullein.

Glandular: Trichomes with secreting end cells. End cells vary in number from one, two and more, commonly five to ten. In the mints, tobacco, hyoscymus, nettle, etc. The number of secreting cells is occasionally diagnostic. The multicellular structures of kamala and lupulin are usually designated as glands.

Multicellular: More than one row or layer of cells, as in cocoa, Indian hemp (multicellular glandular trichomes), rhus glabra fruits, etc. Not common nor widely distributed in the plant kingdom.

True Multicellular Trichomes: As in rhus glabra.

False Multicellular Trichomes or emergencies; as in Indian hemp. Pappus, prickles, warty excrescences and similar structures should be included here.

Unusual Trichomatic Structures: T-shaped as in Pyrethrum flowers; shield-form as in the olive leaf, etc. Naturally such unusual structures are highly diagnostic. None of the U. S. P. drugs contain any of the unusual trichomatic structures.

Epidermis.—In plants, a single layer of cells, including the above mentioned trichomes. Including also the outer layer of the seed coat or testa in which the cells often show remarkable structural variations. The cells differ greatly as to size and form, thickness and structure of cell-walls, as to cell-contents, etc. Note especially epidermal cells of leaves; of fleshy fruits (of tomato, window cells of apple and quince); the papillose cells of coca leaves and rose petal; of young stems, etc.

Cuticle: The outer or external cell-wall, with various markings and projections. Extremely variable as to thickness. The inner wall of epidermal cells (the wall parallel to the cuticle or outer wall) never presents any diagnostic characters and need not be further mentioned.

Verticle Cell-walls: These may be wavy (sinuous), or straight; thin, much thickened, warty, porous.

Stomata: Somewhat variable as to size of guard cells but the structural differences are not sufficiently marked to be of any special diagnostic value. The relative occurrence and distribution of stomata on upper and lower surfaces of bifacial (dorsiventral) leaves may be diagnostic.

Nebenzellen (Neighboring Cells): May be of great diagnostic value, indicated by number of cells, size and form of the cells and nature of cell-contents.

Hypoderm.—One or more layers of cells immediately underneath the epidermis, as in buchu, mace, fig. The cells are usually much larger than those of the epidermis but quite generally without diagnostic structural characters or contents (Cystoliths in fig leaf). Cell-walls may be mucilaginous as in buchu. Not common.

Collenchyma.—Characterized by cell-walls thickened at the angles.

Parenchymatous: Cells nearly isodiametric or slightly elongated, as in gentian root.

Bast-like: Cells much elongated, the usual or typical form, as in labiate stems. The characteristic thickenings at the angles of the cells are seen in transverse section.

Palisade Tissue or Cells.—Elongated cells usually placed endwise, vertically to surface; as the palisade tissue of the leaves, of the seed coat (testa of many seeds, bean, pea, apple seed, quince seeds, etc.). Generally of great diagnostic value, excepting in case of leaf palisade which is only exceptionally diagnostic.

Bast Cells or Bast Fibers.—Cell-walls with or without lignin; comparatively non-porous; ends tapering pointed.

Typical: Greatly elongated cells; extremely flexible; colorless; usually non-lignified but much thickened walls. Typically developed in willow bark, in cotton root bark, mezereum, etc. Widely distributed in barks, stems and roots.

Sclerenchymatous: Short cells with greatly thickened and usually porous, lignified walls. Typically developed in cinchona barks, cinnamon barks, sassafras bark, etc.

Branching: Cells usually elongated and more or less branching at the ends, as in wild cherry bark, soap bark, etc. Not very common.

Sclerenchyma Cells or Stone Cells.—Cells generally not greatly elongated; thickened, porous and lignified walls; often of brownish color; ends not tapering pointed.

Typical: Cells approximately isodiametric; walls may be greatly thickened, comparatively thin-walled or unevenly thickened. Very widely distributed in the plant kingdom; found in barks (especially the outer bark), roots, fruits (principally in the pericarp), in the pear, quince, etc.

Elongated or Bast Like: Resemble short bast cells but ends are truncate instead of tapering pointed. Found in some barks (coto), in star anise, some roots, coffee hulls, currants, etc.

Branching: Never greatly elongated. Typically developed in tea leaves, in some nut shells (peanut pericarp), seed pits (endocarp), some barks, etc.

Wood Fibers or Wood Cells.—Differ from bast in that the fibers are more firmly bound together, more porous, always lignified, much more uniform in transverse diameter though walls vary considerably in thickness. Ends usually very blunt, or truncate, or diagonally cut.

Tracheids.—Resemble wood fibers very closely, cell-walls more porous as a rule, ends tapering pointed, walls usually lignified. Typical bast, wood fibers and tracheids are similar as regards the transverse diameter. The following are the principal kinds.

Typical: Walls always lignified, very porous, forming woody tissue.

Tracheids with Bordered Pits: Typically developed in the pines, forming the woody structure. Rare in other plant groups.

Bast-Like Tracheids: Soft, flexible, generally non-lignified elements; ends tapering pointed. Not a diagnostic tissue in any of the important drug plants. In roots, some barks, etc.

Ducts or Vessels.—The water conducting tubes of vascular bundles and of other conducting tissues. Always lignified. The following are the principal types:

Porous: Very variable in transverse diameter. The pores vary in form and size, gradually merging into the reticulate type. Pores slit-like (transverse and diagonal); cats-eye (slits with borders), circular, oval, etc. Very widely distributed among herbs, shrubs, trees (conducting tubes of woody tissues).

Scalariform: Typically developed in the fern group. Less commonly present in other plant groups.

Reticulate: A modification of the porous type. Very common in dicotyledonous herbs. Very variable in transverse diameter. Gradually merging into the spiral type.

Spiral: Typically developed in monocotyledonous plants, though also common in dicotyledons. Gradually merging into the annular type.

Annular: Typically developed in the grass family; less common in other plant groups.

Parenchymatous Tissue.—A term applied to the predominating tissue in plants or in plant parts. We thus speak of wood parenchyma, bark parenchyma, leaf parenchyma, seed parenchyma, fruit parenchyma, etc., etc. The following types are recognized, in a more limited sense.

Parenchyma Proper: The cells are practically isodiametric, thin-walled, walls only slightly porous and never lignified. There are, as a rule, intercullular spaces due to the fact that the cells are loosely united. Widely distributed in the plant kingdom, occurs in roots, stems, fleshy fruits, tubers, rhizomes, bulbs and corns.

Pith: The central tissue of stems, rhizomes and roots. A typical parenchyma.

Bark Parenchyma: Cell-walls may be suberized (cork-tissue), often not suberized (inner bark parenchyma).

Endosperm Tissue: The parenchyma of seeds. Cells extremely variable as to the thickness of walls, porosity of walls, contents. A highly diagnostic tissue.

Fruit Pulp (of false as well as true fruits): A typical parenchyma.

Pericarp Parenchyma: Generally a typical parenchym.

Leaf Parenchyma or spongy tissue: Composed of from one to three rows of palisade cells (upper, sometimes also a lower, as in Eucalyptus), and the aerating, pneumatic or spongy tissue proper. Very rarely diagnostic. Cell-contents sometimes diagnostic (crystals, resin, coloring substances, etc.).

Sieve Tubes.—Associated with vascular bundles, typically developed in cucurbitaceous plants, of no special diagnostic value. Elongated, narrow conducting cells usually accompany the sieve tubes. These are never diagnostic.

Crystal Bearing Fibers.—Rectangular cells united end to end forming elongated threads, each cell bearing a prismatic crystal of calcium oxalate. Usually associated with Bast tissue. Typically developed in cascara bark and other barks, licorice root, etc.

Laticiferous Ducts.—Typically developed in the fig and dandelion. Also found in other plants.

Resin Ducts.—Typically developed in the bark and wood of the coniferae.

Glands.—As in leaves (buchu, eucalyptus, pilocarpus, bay, etc.), in some barks, fruits, seeds, etc.

Glandular Cells.—As in mace, allspice, ginger, etc. Usually contain resin, oleo-resin and oil. Size of cells, relative number of cells and character of cell-contents often very diagnostic.

Atypical Cells and Tissues.—Essentially fomative or immature and of very little diagnostic value. Includes the so-called phloem tissue, cambium, cork cambium, phellogen, so-called conducting cells of the phloem portion of vascular bundles, apical cells, and immature cells generally.

Supplemental to the course in General Botany.—For the purpose of stimulating interest and to add to the regular required work and also to bring out special powers and aptitudes in students, as well as special likes and dislikes to certain phases in the study of botany, the following is suggested: Assign special reading as suggested by the topics given below; make botanical excursions into the surrounding parks, fields and forests, etc. Hold seminar meetings at least twice each month at which students may report upon the special reading, field observations, etc. The instructor in charge should always be present at these meetings, not as a presiding officer, but simply to assist in the work and to explain when desirable or when called upon to do so. This sort of work will develop self reliance in students as well as the power of expression and will enable the instructor to discover the weak points in the course as outlined and presented by himself.

The work in botany should be further supplemented by means of sets of stereopticon slides, wall charts, botanical models, etc.

Subjects suggested concerning which students might do special reading. Other subjects may be assigned, dependent upon opportunity, library facilities, etc.

1. What Plants are.
2. Where Plants grow.
3. The Food of Plants.
4. Plants and Sunlight.
5. Aquatic Plants. Desert Plants.
6. Aerial Plants.
7. Vegetable Parasites. Plant Diseases. Bacteria. Fungi. Insects.
8. Saprophytes. Parasites.
9. Mutualistic Plant Associations.
10. Propagation of Flowerless Plants.
11. Leaves of Plants. Flowers.
12. Fruit and Seeds.
13. False Fruits. Apple, Quince, Strawberry, Fig, etc.
14. Pollination and Fertilization.
15. Germination of Seeds. Germination Tests.
16. Planting Seeds. Transplanting. Grafting.
17. Uses of Plants. Food Plants.
18. Domestic Plants. Origin and Use.
19. Distribution of Plants.
20. Plant Ranges.
21. The Age of Plants.
22. Gardening.
23. Horticulture.
24. Farm Plants.
25. Spices.

Wall Charts Required to Illustrate Plant Histology.

I. Diatoms and Desmids.
II. Bacterial Types. Rhizobia. Mycorhiza. Root Tubercles.
III. Filamentous Algae. Types.
IV. Fungi. Ascomyates and Basidiomyates.
V. Lichens—Thallus, Apothecia, Algal types.
VI. Stoneworts and Liverworts.
VII. Moss. Gametophytic and Sporophytic Generations.
VIII. Fern. Gametophytic and Sporophytic Generations.
Leaf-stalk, leaf sections (transverse and epidermal).
Rhizome. Spores.
IX. Conifer—Histology of stem and leaf. The Cone.
X. Corn—Histology of stem and root. Entire plant.
XI. Willow—Histology of stem and leaf.
XII. Lenticels and Collenchyma (Sambucus and Elder).
XIII. Cork.
XIV. Hair-Cells—Select types.
XV. Taraxacum. Laticiferous ducts and Inulin.
XVI. Stone cells. Select types.
XVII. Dorsiventral concentric and isolateral leaf.
XVIII. Starches. Select types.
XIX. Types of Vascular Bundles.
XX. Stem, Rhizome and Root.
XXI. Types of Crystals.
XXII. Types of Vessels.
XXIII. Cell Divisions (mitosis).

Slides of Hough's Woods.

1. **Abies nigra.**—Black Spruce, Double Spruce.
2 **Larix Americana.**—American Larch, Tamarack, Hackmatack.
3. **Pinus resinosa.**—Red Pine, Norway Pine (latin name not appropriate as there is but little resin). Wood hard, compact. Slow growth.
4. **Juniperus Virginiana.**—Red cedar, Savin. Hard reddish wood, odorous. No resin ducts.
5. **Abies balsamea.**—Balsam fir. Small tree with soft, comparatively worthless wood.
6. **Abies Canadensis.**—Hemlock fir, Hemlock spruce. Large tree with coarse rather hard wood. Note large (in groups) and narrow annular rings indicating favorable and unfavorable seasons.
7. **Thuja occidentalis.**—Arbor vitae, White cedar of the north. Planted for hedge.
8. **Populus grandidentata.**—Large-toothed poplar. Large American aspen. Soft wood. Arrangement of ducts.
9. **Fagus ferruginea.**—American beech. Fine grained. Note large and small medullary rays. Ducts.
10. **Tilia Americana.**—Basswood, American linden. Soft wood.
11. **Juglans cinerea.**—Butternut, White walnut. Rather coarse, medium hardness wood. Large ducts.
12. **Aesculus hippocastanum.**—Horse chestnut, Buckeye. Rather fine-grained.
13. **Magnolia acuminata.**—Cucumber tree. New York, rapid grower, soft wood, peculiar fruit.
14. **Acer saccherinum.**—Sugar maple. Rock maple. Large trees, yield sap, not

very rapid growers, hard wood, numerous prominent med. rays.

15. **Platanus occidentalis.**—American Plane, Sycamore, Buttonwood. Large tree. Numerous large med. rays.
16. **Liriodendron tulipifera.**—Tulip tree. Tall, handsome tree. Light, soft lumber of uniform texture, much used in cabinet work.
17. **Nyssa multiflora.**—Tupelo, Sour Gum. Tough wood, hard to split, med. rays deficient, wood cellumen narrow, cell-walls thick.
18. **Betula lutea.**—Yellow birch, Gray birch.
19. **Celtis occidentalis.**—Hackberry, Nettle tree. Two sets of ducts (large and small).
20. **Aralia spinosa.**—Hercules Club. Angelica tree. Shrub-like tree. Two sets of ducts; medullary rays numerous.
21. **Ulmus fulva.**—Slippery Elm. Tough, reddish wood, wood-cells small, walls thick.
22. **Rhus typhina.**—Staghorn sumach. Yellowish wood.
23. **Fraximus Americana.**—White Ash. Light tough wood.
24. **Ailanthus glandulosus.**—Ailanthus. Chinese sumach, tree of heaven. Tall tree of rapid growth and hard wood.
25. **Quercus rubra.**—Red oak, hard wood, coarse.

SETS OF SLIDES REQUIRED.

Set of slides illustrating the histology of plants.

Set of slides illustrating the more important medicinal plants.

Set of slides illustrating food plants.

Set of slides illustrating the commerce in drugs.

Set of slides illustrating drug plant culture.

Set of slides illustrating botanic gardens.

Set of slides illustrating fiber plants.

Material required for the laboratory work in vegetable histology.

1. Set of permanent slides for the microscope illustrating nuclear division. Onion or Lily root tips.
2. Protococcus from bark or from wood work and pots in green houses. Diatoms, Desmids, etc., from hydrant water, or watering troughs, ponds, etc.
3. Pond scum.—Oscillaria, Euglena, Spirogyra and Cladophora. Perhaps also Nostoc, vaucheria, Oedogonium, etc., from shallow water or from moist soil, near water.
4. Bacteria and Yeast.—Hay infusion, potato cultures, root tubercles of Legumnosae. Yeast, mother-of-vinegar.
5. Hyphal fungi.—Moulds on bread, cooked pumpkin and squash. Cup fungus. Polyporus. Puff balls for spores and hyphae. Mushrooms, shelf fungi, etc.
6. Lichen.—Pharmelia, Physcia, etc., local growth. Thallus, spores, soredia.
7. Liverworts.—Marchantia, Conocephalus—Thallus, spores, elaters.
8. Moss.—Leaves, stem, sporophyte, protonema, spores.
9. Fern.—Leaf, rhizome, prothallum, spores.
10. Pine.—Stem, leaves, bark.
11. Corn.—Stem. Lily Leaves. Acacia phyllodes.
12. Willow.—Stem and leaves.
13. Buchu leaves.—Uva ursi.
14. Fig (**Ficus elastica**) leaves.—House plant, green houses.
15. Eucalyptus leaves.—Drug supply house, drug store. Grows in California.
16. Cucumber stem.—Collect material in the Fall and preserve.
17. Ginger rhizome.—Drug store, grocery store. Chinese pharmacy or grocery.
18. Asclepias.—Drug store or supply house, or secure in fields.
19. Coffee beans, Coto bark, Cinchona, wild cherry bark.—Drug supply house.
20. Starches, crystals, pollen.—Potato, Maranta, corn, rice, oat, bean, wheat, etc.
21. Milk tubes and inulin. Fig, Taraxacum, Inula.
22. Fruits—True and false. Apple, peach, pear, quince, raspberry, cranberry, currant, loganberry.

PHARMACEUTICAL BOTANY.

A course of lectures and recitations one hour each week during the second half of the junior or first year of the regular two years' course. Special attention will be given to the phylogenetic relationships of the several plant groups, the morphology of the family, genus and species; active constituents; range and distribution. Special attention will also be given to the general economic significance of the species of the several groups with special reference to the commerce in the drugs derived therefrom.

The chief aim and purpose of the course will be to acquaint the student with the plants from which drugs are derived. The work will be supplemented and illustrated by charts, herbarium specimens, garden and field specimens, lantern slides and special reading. The course is preparatory to the work in pharmacognosy during the second year. The following are the more important plants treated, giving them in the order of the phylogenetic sequence of the natural orders.

PHARMACEUTICAL BOTANY.

THALLOPHYTA—
  Algae—Gigartinaceae. Seaweeds.
    Chondrus crispus.
    Gigartina mamillosa.
    Fucus vesiculosus.
    Echeuma gelatinum (Agar-agar).
    Halymenia palmatus.
    Halyemenia edulis.
    Sphaerococcus lichenoides.
  Fungi.
    Claviceps purpurea.
    Ustilago maydis.
    Polyporus fomentarius.
    Polyporus officinalis.
    Agaricus muscarius.
  Lichenes.
    Cetraria islandica.
    Lecanora tartarea.
    Rocella tinctoria.
    Sticta pulmonaria.
    Ramalina reticulata.
    Usnea barbata.
    Physcia speciosa.
PTERIDOPHYTA—
  Filicinae.
    Dryopteris felix-mas.
    Dryopteris marginalis.
    Dryopteris rigida.
    Osmunda regalis.
    Adiantum pedatum.
    Polypodium vulgare.
    Lycopodinae.
    Lycopodium clavatum.
PINACEAE—
  Pinus palustris
  Pinus taeda.
  Pinus rigida.
  Pinus sylvestris.
  Larix sibirica.
  Abies balsamea.
  Abies excelsa.
  Abies fraseri.
  Abies picea.
  Abies menziesii.
  Thuja occidentalis.
  Juniperis communis.
  Juniperus oxycedrus.
  Juniperus sabina.
  Agathis Australis.
  Torrya Californica.
GRAMINEAE.
  Zea Mays.
  Saccharum officinarum.
  Agropyron repens.
  Sorghum vulgare.
  Avena sativa.
  Hordenum distichon.
PALMAE—
  Serenoa serrulata.
  Metroxylon rumphii.
  Areca catechu.
  Cocos nuciferae.
  Daemonorops draco.
  Elaeis quineaensis.
ARACEAE—
  Acorus calamus.
  Arisaema triphyllum.
  Iris versicolar.
  Iris florentina.
  Crocus sativa.
  Spathyema foetida.
  Epipremum mirabile.

(To be continued.)

AN EPITOME OF URINALYSIS.*

By HENRY P. de FOREST, M. S., M. D.
Adjunct Professor of Obstetrics in the New York Post-Graduate Medical School And Hospital.

The importance of urinalysis as an aid to accurate diagnosis is well recognized by all practitioners who are leaders in the profession, but the numerous demands upon the time of a busy doctor oftentimes makes it impossible for him to look after the details of urinalysis himself. In the large cities clinical laboratories are available, but circumstances often make it as difficult to forward a specimen to the clinical laboratory as it is to make the examination itself. Then, too, the element of expense must be considered, and for patients unable to pay more than moderate fees, the additional cost of a dollar or two for a special report upon the urine is practically prohibitive unless the physician is willing to pay this fee himself.

Many books upon urinalysis are available in our medical libraries. Every physician has a more or less complete knowledge of the details of the routine examination of urine, but the lack of systematic laboratory work oftentimes makes him disinclined to keep up with this department of research.

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* From the Druggists' Circular.

In the accompanying card a selection has been made of a single reliable test for each abnormal ingredient of urine. No attempt has been made to give any variety or choice in the matter, but as the result of nearly thirty years of laboratory and hospital work, the writer feels sure that each test described is reliable. The text was prepared primarily for the use of an office nurse with no experience in laboratory methods. The formulas are given in such a way that any druggist can prepare them.

The card itself is kept under a sheet of glass on the laboratory shelf to make it readily accessible as a means of reference, and to preserve it from injury by the solutions in case of accident. If the directions be carefully followed it is believed that any intelligent person, medical or non-medical, can readily perform the tests described.

A microscopic examination is practically unnecessary unless albumin is present. Should it be required, the excellent chapter upon the "Examination of Urinary Sediments," by Drs. Myers and Fine can be readily referred to. The illustrations of this article which appeared in the *Post-Graduate* for May, 1913, can also be kept under the glass as a means of ready reference for the neophyte. The various supplies required can be procured in many places, but to save time, specific directions are given as to the source of the apparatus and charts to which reference is made. The entire expense involved for reagents and apparatus is approximately $10. Specific directions are given, as to the source of the apparatus and of the charts to which reference is made.

An experience of several years has shown that these examinations can readily be made by an office nurse, and it is put in type by the writer in the hope that it may be of practical assistance to his medical friends.

REAGENTS.

A. **Esbach's Reagent** (Albumin).

Picric Acid	10.00
Citric Acid	20.00
Water, distilled	1000.00

B. **Bromide of Potassium,** 25% solution, (Urea).

C. **Chloroform** (Indican).

H. **Hydrochloric Acid.** c. p. (Indican).

L. **Labarraque's Solution;** Liquor sodae Chloratae, (Urea).

a. Carbonate of Sodium	100.00
Water, distilled	400.00
b. Calx Chlorata	80.00
Water, distilled	400.00
Mix a and b and add water to	1000.00

N. **Nitric Acid.** c. p. (Bile).

P. **Permanganate of Potassium,** ½% solution (Indican).

Q. **Disulphide of Carbon** (Uric Acid).

R. **Ruhemann's Reagent** (Uric Acid).

Iodine	1.50
Iodide of Potassium	1.50
Alcohol. c. p	15.00
Water, distilled	185.00

S. **Nylander's Reagent** (Sugar).

Subnitrate of Bismuth	20.00
Rochelle salt	40.00
Hydrate of Sodium, 8%	1000.00

U. **Urine.** If not clear, filter before using it for chemical tests.

V. **Acetic Acid.** c. p.

RECORD EACH FACT ON URINALYSIS CARD.[1]

Statistics: Name, sex, age, nationality, residence, date, quantity in 24 hours. (Average is 1,500 c.c. or 50 fl. oz.)

Color and Clearness: (Vogel's scale.[2]) Pale yellow, light yellow, yellow, reddish-yellow, yellowish-red, red, brownish-red, reddish-brown, brownish-black. Clear, turbid.

Odor: Aromatic, ammonical; faint, medium, strong.

Reaction: (Litmus paper.[3]). Dip paper in urine. Red=acid; mark +; Blue=Alkaline; mark—, indefinite; mark=

Specific Gravity: (Urinometer.)[3] Record reading at fluid level, (average is 1022).

Albumin: Qualitative and Quantitative. (Esbach's Albuminometer.[3]) Fill to "U" with urine; then to "R" with "A." Cork, invert thrice. Normal urine remains clear; a trace of albumin gives mere turbidity at once; more than this gives heavy white precipitate. Allow to stand vertically over night. Read and record percentage from scale in morning. Each main division indicates one gram of albumin per liter.

Sugar. Qualitative. (Test Tube.) Fill lower third with "U," middle third with "S." Mix. Boil upper quarter. If sugar be present, boiled portion turns very black.

Quantitative. (Stern's Urino-glucosometer.[3]) Put one-quarter yeast cake in glass; "U" to 100 c.c. mark. Insert urinometer, cover with aluminum cap. Record reading of urinometer at level of cap. Stand in warm place over night. Stir with glass rod in morning till all bubbles escape. Replace urinometer and cap and record reading. Multiply difference in degrees by 0.2196=percentage of glucose in 100 c.c. (e. g. 1036—1020=16×0.2196=3.1536% of sugar).

Urea: Qualitative and Quantitative. (Bartley's Ureometer.[3]) Fill to 5 with "B"; to 15 with "L." Keep tube inclined; be careful not to mix. Overlay with water to 25, slowly pour down side 1 c.c. of urine from dropping tube. Cork tightly with thumb in rubber finger cot, invert tube and mix well. Read and record scale of fluid level in inverted tube. Remove thumb from the tube under water. Read again. The difference gives the number of grains of urea per ounce (e. g., 38.25—30.00=8¼ gr.).

Uric Acid: Qualitative and Quantitative. (Ruhemann's Uricometer.[3]) Fill to "S" with "Q" to "J" with "R"; to lowest line with "U." Shake well. Slowly add "U," shaking well with each c.c. until "Q" is porcelain white. Line at level of fluid indicates number of parts of uric acid per thousand.

Indican: Qualitative. (Test Tube.) To 10 c.c. of "U" add 10 c.c. of "H." Mix. Add 5 drops of "P." Shake well. Add 5 c.c. of "C." Shake well. Blue coloration of chloroform after standing indicates presence of indican. (Porter's scale.[4])

Bile: Qualitative. (Test tube.) Acidulate "U" with "V" if necessary. Add 1 c.c. of "C." Shake well. Pour off urine. Overlay "C" with 1 c.c. of "N." If bile pigments be present, a ring of green, blue, violet and red forms between "C" and "N."

Deposit on Standing: Mucoid, flocculent, crystalline; white, reddish, other colors; faint, medium, heavy.

Examination with Microscope: Practically unnecessary unless albumin be present. Centrifuge if possible, or allow urine to stand in covered sediment glass.[3] With slender pipette [3] place small drop of sediment in center of slide. Apply cover glass. Examine with moderate power objective. Identification of elements assisted by illustrations under the glass of common crystals, blood and epithelia cells and casts.[5]

[1] Any large dealer in office supplies.
[2] Tyson's Practical Examination of Urine.
[3] Any large dealer in chemical supplies.
[4] Given on application by F. H. Strong Company, 58 Warren Street, New York.
[5] Myers and Fine: Post-Graduate, May, 1913.

MINIMUM AND MAXIMUM STANDARDS FOR DRUGS.*

By E. SAVILLE PECK, M. A. (Cantab.).
Pharmaceutical Chemist.

"The establishment of a minimum for the active parts of medicines without establishing a maximum is wrong."

In treating this subject, which has been allotted to me, I take it we can eliminate from the discussion the question of those stable solutions of pure chemical substances, such as Liquor Arsenici Hydrochloricus, Liquor Strychninæ Hydrochloricus, Liquor Potassii Hydroxidus, Tinctura Iodi, Unguentum Cocainæ, and Vinum Quininæ, all of which admit of exact preparation and methods of standardization.

I propose, therefore, to confine myself to crude drugs, the extracts of their active principles in different solvents, and solutions of pure chemical substances which under ordinary conditions cannot be considered stable.

I should like to point out at the outset that although the latest issue of the British Pharmacopœia, compiled by the General Medical Council, was published in 1898, the importance of the principle of giving a maximum as well as a minimum is fully recognized therein. The following are some examples of this:—

In the case of crude opium the standard required is "not less than 9.5 and not more than 10.5 per cent.," corresponding to about 10 per cent. of anhydrous morphine in the dry powdered opium; so likewise in Tinctura Opii a minimum standard of 0.75 and a maximum of 0.80 per cent. of morphine is laid down.

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* Report to the 11th International Congress of Pharmacy held at The Hague, September 17 to 22, 1913.

In Extractum Ipecacuanhæ Liquidum there is a minimum standard of 2 per cent. and a maximum of 2.25 per cent. of alkaloids of ipecacuanha root.

In Jalapa there is a standard of not less than 9 and not more than 11 per cent. of resin having the properties of the official jalap resin.

Tinctura Belladonna should yield not less than 0.048 nor more than 0.052 per cent. of alkaloid.

Tinctura Cinchonæ should yield an amount of alkaloids representing not less than 0.95 nor more than 1.05 per cent.

Tinctura Nucis Vomicæ should yield not less than 0.24 nor more than 0.26 per cent. of strychnine.

In Spiritus Etheris Nitrosi a standard is given as follows:—One volume, when freshly prepared, should yield at least 6¼ but not more than 7 volumes of nitric oxide gas, corresponding to at least 2½ parts by weight of ethyl nitrite in 100 parts by weight of the spirit.

In Syrup Ferri Iodidi and Liquor Hydrigenii Peroxidi maximum standards are also given.

It is quite clear, therefore, that in Great Britain the principle indicated by this subject is to some degree carried out.

Taking the Pharmacopœia of the United States of America, the same can be said of the following:—Opium, Tinctura Opii, and Jalapa; but as a rule, only minimum standards are given, as in the case of belladonnæ radix, hyoscyamus, ipecacuanha, and nux vomica, probably because a drug containing less than the required proportion is considered inferior, and should not be used at all; and it would be preferable, I maintain, if maximum standards were also given.

On the other hand, our knowledge of most drugs is insufficient for us to say definitely that the alkaloids by which these drugs are standardized are the only source of medicinal activity, and it does not always necessarily follow that 1 Gm. of a crude drug containing 0.1 per cent. of alkaloid has the same physiological action as 0.5 Gm. of the same drug containing 0.2 per cent. of alkaloid.

In the Pharmacopœia Germanica V. Cortex Chinæ, Cortex Granati, Radix Ipecacuanhæ, and Rhizoma Hydrastis have minimum but not maximum requirements, and while these are not sufficiently potent to render *exact* standardization necessary, the establishment of a minimum does ensure the elimination of inferior drugs, and this is very important. Referring again to the British Pharmacopœia, in the case of some substances where only minimum standards are mentioned, such as Ferri Arsenas, Ferri Phosphas, Aq. Laurocerasi, Calx Chlorinata, Calx Sulphurata, Liq. Calcis, the conditions of production set a maximum of themselves, making it unnecessary to make a statement to that effect.

In the case of a natural drug which is required to contain not less than 5 per cent. foreign matter a minimum of 95 per cent. is thereby fixed, and any other maximum standard than 100 per cent. would be absurd. In this connection it is as well to bear in mind that in the case of a crude drug, such as opium, definite maximum standards are, of course, impossible unless the dilution with foreign matter is to be allowed.

The establishment of a maximum as well as a minimum standard is most essential in those drugs which do not admit of accurate chemical standardization, such as digitalis, strophanthus, squill, and ergot, but which must be submitted to careful physiological tests, so that when a physician orders 0.5 C.c. of a preparation of these drugs he can feel confident that, within certain limits and given similar conditions, the dose will invariably have the same pharmacological action.

In conclusion, I would say that although in a large number of cases the establishment of a maximum standard is unnecessary, in many others it is essential for the attainment of accurate and constant therapeutic effect.

BOOK NOTICES

Digest of Comments of the Pharmacopoeia of the United States (Eighth Decennial Revision) and of the National Formulary (Third Edition) for the Calendar Year ending December 31, 1911. By Murray Galt Motter and Martin I. Wilbert. Bull. No. 87, U. S. Public Health Service.

This is the seventh bulletin of digests of comments on the U. S. P. and the N. F. It is a most interesting document and of the greatest value to all that are in any way interested in the progress of pharmacy. It should be in the hands of every pharmacist and it should be carefully read as this will give some idea of the work that has been done and indicates the trend of pharmaceutical thought and progress. The report must prove of inestimable value to the members of the Revision Committee of the U. S. P.

M. I. Wilbert and M. G. Motter are both well known to the pharmacists of the United States. For a number of years Mr. Wilbert has been a leader in the American Pharmaceutical Association. The preparation of these bulletins requires a vast deal of painstaking labor and these untiring workers are deserving of much praise.

All those desiring a copy of this bulletin of 683 pages should write to the Surgeon-General, U. S. Public Health Service, Washington, D. C.—A. S.

Practical Bacteriology, Blood Work and Animal Parasitology. Including Bacteriological Keys, Zoological Tables and Explanatory Clinical Notes by E. R. Stitt, A. B., Ph. G., M. D. 408 small octavo pages with 4 plates and 106 text illustrations. P. Blakiston's Son and Co., Philadelphia, 1913.

This is the third edition of the marvelous little work. The book is entitled to the first prize for the amount of accurate, up-to-date information it contains. There is in all probability not a book of equal size of any language which contains an equal amount of authentic information as does this small volume. It contains the latest and most reliable information on the subject of bacteriology and human parasitology. The first and the second editions were most excellent text-books and it seemed that they were ideally perfect but the third edition just from the press surpasses the others by at least 100 per cent. It may be that Dr. Stitt has the ability of bringing together the leading facts of a science in the most compact form, to a very unusual degree. Men of his rare ability should be paid large salaries to write text-books for our institutions of learning.

We commend this prize text-book to all students of bacteriology and parasitology. —A. S.

Proceedings of the Seventh Annual Meeting of the California Pharmaceutical Association.

We are in receipt of a copy of the proceeding of the San Jose meeting of the C. Ph. A. The report is quite complete though there are a few notable omissions. It is much to be regretted that the editing was not more carefully done. The floor remarks are not edited at all, and in the majority of cases they were made even "more worse" than the original. Most of the English perpetrated was atrocious at its best, but to make it worse than it really was is inexcusable. We would earnestly advise more careful editing of future reports of this kind. We do not care to be made ridiculous before our neighbors.

Otherwise, the report is very interesting and shows activity on the part of the C. Ph. A. We are pleased to note that the proceedings contain no ads of any kind. The report is well arranged and the paper and print are good.—A. S.

Directory of Physicians and Surgeons.

A Register and Directory of Physicians and Surgeons licensed to practice in California is published by the Medical Society of the State of California, Butler Building, San Francisco. The twenty-fifth edition will shortly be issued, and contains a very large number of corrections from previous editions. It should be in the hands of every pharmacist for his own protection for it is the only accurate guide to those who, as licensed physicians, are legally permitted to have their prescriptions filled under the "poison law." The book is for sale, price $1.00 per copy, postage paid, and may be had by addressing the Secretary, Dr. Philip Mills Jones, 930 Butler Building, San Francisco. The Society does not issue the book as a business proposition, but always loses money on it, so that any one buying it may feel quite sure that he is getting at least his money's worth.—F. I. L.

SCIENTIFIC AND PHARMACEUTICAL NOTES

"Harmones" and "Chalones."

The convenient term "harmone" (from the Greek, to stir up or excite) was introduced by Starling. The term is applicable to the active principles of many internal secretions, and has been generally extended to include all such principles. Were all the principles of the internal secretions of the same nature, i. e., did they all operate as excitants to activity, no exception could be taken to this extension. It is, however, now known that some of the internal secretions contain principles which do not excite action but check or relax it—which have, indeed, an inhibitory effect, the exact reverse of excitation. For such principles the term hormone, or excitant, is inapplicable. I suggest as a suitable convenient expression for this kind of principle of the internal secretions the term "chalone," from the Greek, to make slack or relax. It is, however, advisable to have an expression which will include both harmones and chalones—both excitory and inhibitory principles. The one quality which distinguishes these principles is their drug-like effect upon the organs and tissues. Many of them act immediately, others more remotely; but the nature of their action is similar to that produced by the active principles of drugs, especially by those of vegetable origin (alkaloids). They may thus be spoken of as the drug-like principles of the internal secretions. A convenient name, suggested by Professor W. R. Wardie, to denote any drug-like principle which is produced in or can be extracted from the internally secreting organs, is autacoid substance, and we may divide these autacoid substances into hormones, or excitory agents, and chalones, or inhibitory agents.—E. A. Schafer (Times, August 7, 1913).

New Alkaloidal Precipitant.

Two patents have recently been taken out in the United States by the well-known American pharmacist, J. U. Lloyd, of Cincinnati, for the use of hydrated aluminum silicate as an alkaloidal precipitant. It is claimed that this substance has the property of combining with alkaloids and some other compounds in acid or neutral solutions, removing them completely. The aluminum alkaloidal silicate can then be washed with water, and the bases subsequently liberated with an alkali. The phenomenon is stated to be essentially one of absorption, and the efficacy of the process depends largely on the fineness of the subdivision of the material. The precipitates thus obtained with alkaloids may be used in medicine, in acid, or neutral mixtures. It is claimed that the compounds of quinine and of other bitter alkaloids are quite tasteless.—M. I. Wilbert (Amer. Drugg., 1913, 61, 234).

Yoghurt Milk Patent (No. 22,554, of 1912).—By Miechtechnisches Laboratorium Dr. Thomas, Dr. Delené, and Dr. Ridder, mit Beschrankter Haftung, 47, Gabelsbergerstrasse, Cologne, Germany. Yoghurt (Bulgarian sour) milk can be manufactured in the following way: Milk is sterilized, and a portion is inoculated with 1 per cent. of pure culture of the coccus-shaped Yoghurt microbes (Bacillus paralacticus) and developed at 45° C. until the milk coagulates and a yellow layer of whey is formed. Another portion of the sterilized milk is similarly treated with 1 per cent. pure culture of the rod-like Yoghurt microbe (Bacillus bulgaricus). The two products are cooled to 10° C., and then mixed in about the proportion of 10: 1.

Nutrient Enema.—The daily urinary nitrogen output of patients receiving enema of eggs or milk "peptonized" a few minutes failed to give evidence of more than traces of absorbed protein products. Amino-acids prepared from milk by digestion for twenty-four hours with a vigorous pancreatic enzyme were apparently well absorbed. Dextrose was absorbed better than lactone and checked the losses due to inanition. For patients suffering from gastric ulcer, useful enemas can be prepared by vigorous pancreatic predigestion of milk, with subsequent addition of 5 per cent. of dextrose. (Jour. A. M. A., July 12, 1913, p. 123).

Medicolegal Examination of Seminal Stains.—This article states that the rectangular and pointed crystals obtained with the Florence reagent are not so characteristic of seminal fluid as the ovoid crystals which occur singly or in groups. These ovoid crystals were discovered simultaneously last year by De Dominicis and Baecchi not only with the Florence reagent but with Dragendorf's. By modifying the Florence reagent a little these ovoid crystals show up much better, and Lecha-Marzo and Conejero are convinced that the round and ovoid crystals are the only ones for which the seminal fluid is directly responsible, the rectangular and pointed crystals being crystals of the decomposition products of lecithin, as Richter has pointed out. Their reagent is like the Florence only that it contains more iodin. Potassium iodid 1 gm.; iodin 0.5 gm.; distilled water, 25 gm. The Mangini reagent used in testing alkaloids also shows up the crystals unusually well. A microscope of only 500 diameter power is ample for the purpose.—Druggists' circular.

Parasite of Hydrophobia.—The microbe of hydrophobia is reported to have been discovered by Professor Hideyo Nogushi, who describes it in the Bulletin of the Rockefeller Institute. It appears to be a "nucleated corpuscle with the appearance of protozoa." According to Professor Metchnikoff, head of the Pasteur Institute in Paris, "Nogushi has made a most important discovery. His notice, having been hastily published, is somewhat brief and obscure on certain points, but Nogushi's personality and the strict control exercised at the Rockefeller Institute are sure guarantees of the authenticity of this new discovery, which will mark an epoch in bacteriological history. The culture of the protozoa of hydrophobia will possibly allow of the making of a serum or vaccine much more active than the spinal preparations now used in antirabic inoculation. The long and painful treatment now consisting of twenty injections will probably also be much shortened."

Among the newer drugs, which has proved efficient in my practice, is phenolphthalein. My experience with this drug, in the last two or three years, would indicate that its action was a liver stimulant of rare quality, and a tonic to the mucosa of the intestinal tract of no mean order. Its action seems to be much like calomel without any power to overstimulate or to produce any poisonous effect.—Dr. Hall in Mo. State Med. Jour.

Fly-Borne Typhoid.—C. E. Terry in the U. S. Public Health Reports, gives an account of the control of typhoid in Jacksonville, Fla., showing a marked reduction in the typhoid rate since the enforcement of rules requiring the fly-proofing of privies, the screening of sick-rooms in cases of typhoid, and the destruction of flies by poison or sticky fly-paper. He believes that the fly transmits infection through its excreta rather than by means of the specific bacilli carried on its feet from infectious material; also, that the fly bred in infectious material is a carrier for a longer period and hence more dangerous than the insect obtaining its infection through contact or feeding after maturity.—Journ. A. M. A.

Herzberg's Chlorzinciodine Solution for Paper Testing.—Solution A.—Zinc chloride, 20 gms.; distilled water, 10 mils. Solution B.—Potassium iodide, 2.1 gms.; iodine crystals, 0.1 gm.; distilled water, 5.0 mils. The two solutions are mixed, allowed to stand for twenty-four hours, and decanted into amber-glass bottles fitted with dropping stoppers. A drop of Herzberg's stain applied to the paper pulp on a microscope slide brings out a wine-red color on cotton and linen fibers, gives a good clear blue color with bleached soda and sulphite wood pulps, and a characteristic yellow or greenish-gray-yellow with ground or mechanical wood pulp. The following solution is said to have some advantages over the former: Solution (1).—Calcium nitrate crystals, 100 gms.; distilled water, 50 gms. Solution (2).—Iodine, 1 gm.; potassium iodide, 5 gms.; distilled water, 90 gms. For use, 3 mils. of solution (1) is added to solution (2). It stains linen fiber a rose color with a brownish tinge; ground wood is colored yellow; bleached sulphite fiber, a delicate rose tint; unbleached sulphite fiber, clear yellow; soda poplar fibre, indigo blue; straw fiber and esparto, blue.—T. J. Keenan (Chem. Engineer, through Chem. News, July 25, 1913, 45).

Sterilized Kaolin.

Since 1898, Stumpf has been working with sterilized kaolin, and has obtained some surprising results in surgery, as well as in the internal treatment of a number of disorders. The effects are believed to be due to the extremely fine state of subdivision of the substance, which enables it to envelop the bacteria and carry them off from the site of culture. Neglected crural ulcers, sanious wounds, and wounds on the limbs, were rapidly improved by successive treatment with sterilized kaolin. The bad odor disappeared, and the symptoms of inflammation diminished in intensity. Complete cure was effected in a short time. Gynecological affections were treated in the same manner, and with equally happy results. Internally, the kaolin was used in gastroenteritis, gastrointestinal catarrh, fish poisoning, intestinal tuberculosis, cholera nostras, and Asiatic dysentery. Doses up to 250 g. were tolerated with no difficulty. All symptoms were quickly alleviated, and particularly in cholera nostras, where the first dose destroyed part of the toxins, and subsequent doses led to sleep, rest and cure. The kaolin is put on the market in various forms, for bandages, compresses, gargles, etc. (Kottenhof, Schweiz. Wochschr., 1913, p. 302).

Tincture of Iodine as a Cure for the Narcotic Habit.—According to an editorial in the Medical Fortnightly (Sept. 25), the external application as well as the internal administration of tincture of iodine will cure the opium habit. This discovery was made accidentally in cases of drug habitues who used applications of tincture of iodine for rheumatic and other troubles. Similar applications are said to have cured the cocaine habit. This is most interesting but requires further testing and verification.

The Fly Breeds in Filth.—How can the fly be clean? One female may deposit one hundred and twenty little white, seed-like eggs in stable manure, putrid meat, fermenting garbage, decaying heaps of paper or rags, and also in places that need not be mentioned, and here the eggs hatch into tiny wriggling worms called "maggots." These feed and grow, and in time burrow deep into the filth, changing into pupae from which emerge the full grown insects. The fly lives a filthy existence from the beginning to the end of his life; he breeds in filth, lives in filth, and carries disease laden filth on his body. The presence of flies is in a considerable measure an index to the unsanitary conditions about the home and around the town.—Mississippi Health Bulletin.

Applied Mathematics.

I sometimes wonder what's the use
Of squaring the Hypotenuse,
Or why, unless it be to tease,
Things must be called Isoceles.
Of course I know that mathematics
Are mental stunts and acrobatics,
To give the brain a drill gymnastic
And make gray matter more elastic—
Is that why Euclid has employed
Trapezium and Trapezoid,
I wonder?—yet it seems to me
That all the Plain Geometry
One needs, is just this simple feat—
Whate'er your line, make both ends meet!
—Anne W. Young in Harper's Magazine.

"You ought to brace up and show your wife who is running things at your house."

"It isn't necessary. She knows."—Houston Post.

A Promising Child, Indeed.

For politeness this little girl should take first prize.

A school director was calling on a prominent New York woman one morning not long ago on school business, and as the interview was at an end he encountered her little girl playing in the hall. She rose politely and opened the door for him.

"Thank you," said he. "I am sorry to give you so much trouble."

"Oh," she answered, with a bright smile, "I am only sorry I am not letting you in."—Harper's Magazine.

Lady (to tourists' agency official):—I have nothing to declare. What shall I say?

Official—Say, madam, that you have nothing to declare.

Lady—Yes; but suppose they find something?—Punch.

"Why am I gloomy?" demanded the undesirable admirer, to whom she had given the cut direct. "Isn't it enough to make one gloomy to be cut by one he loves best?"

"The idea!" exclaimed the heartless girl. "I didn't even know that you shaved yourself."—Catholic Standard and Times.

Little Tommy (reading the Bible)—Pop, what is a hand maiden?

Pop—A hand maiden? Great Scott. They didn't have manicure girls in those days, did they?—Judge.

Poet's License.

"Twinkle! Twinkle! little star," the poet said, and lo!
Way above the earth so far the stars a-twinkling go.
—San Francisco Call.

"Roll on, thou deep blue ocean, roll!" another voice was heard,
And ocean rolls obedient to his mandatory word.
—Louisville Herald.

"Blow, blow, thou winter wind," the third one gave command,
And every winter now we hear it blow to beat the band.
—Boston Transcript.

"Thou, too, sail on, O ship of state," a poet once did sing;
And ever since the ship of state's been doing that same thing.
—Yonkers Statesman.

THE SODA FOUNTAIN

Ginger Lemonade.

Squeeze one-half a large lemon in a large soda glass, add one and one-half ounces ginger syrup and a scoop of cracked ice. Fill glass with plain soda water and garnish with a thin slice of lemon and serve with a straw.

Pear Phosphate.

Wash one-half dozen ripe Bartlett pears, do not peel, but cut into small pieces and weigh. Cover with an equal weight of granulated sugar. Put on the fire and heat until sugar is all dissolved, with gentle heat not over 160 degrees Fahr.

When sugar is all dissolved mix well and mash up as much as possible. Place in a bag made of fine cheese cloth and hang up for the syrup to drip out.

When it has drained almost dry squeeze out as much syrup as possible by twisting the bag, but do not carry this far enough to force out the pulp or it will make the syrup thick, being a little cloudy will not hurt it.

Put this syrup in a jar in your fountain. To serve, draw one and one-half ounces of the syrup in a mineral glass, add a dash of acid phosphate, a scoop of shaved ice, fill with solid soda, and serve with a straw.

Coffee Shake.

Into a twelve-ounce glass half full of shaved ice put half an ounce sweet cream, one ounce coffee syrup, and half an ounce of vanilla syrup. Fill the glass three-fourths full of milk, shake, strain, and add sufficient carbonated water to fill the glass; pour from the shaker into the glass and serve.

Summer Breezes.

Ice cream, one ladle full; place in twelve-ounce glass, add one ounce each of strawberry and vanilla syrups and fill glass with carbonated water.

Grape Flip.

Pure grape juice, one ounce; raspberry syrup, half an ounce; orange syrup, half an ounce; juice of half an orange; add half a glassful fine ice shavings, and fill glass with carbonated water; mix with a spoon. Decorate with fresh mint and seasonable fruits; serve with straws.

Cantaloupe Crushed Fruit.

Select three nice large ripe cantaloupes, and remove the seeds. Then, with a spoon, cut out the eatable part of the melon in small portions, putting them into a small one-half gallon fruit bowl, and fill nearly full with simple syrup. The amount of syrup you can use will, of course, depend upon the amount of pulp that the fruit yields. Use these just the same as any other crushed fruit in the preparation of sundaes.

Pear Ice Cream.

Peel and cut up two to four nice-flavored pears and add a little piece of cinnamon, the peel of half and the juice of one lemon and six ounces of sugar. Cook quickly into a mush and strain through a hair sieve; add to two pints of base cream and freeze.

Saratoga Lemonade.

Squeeze the juice of one lemon into a ten-ounce glass one-fourth full of cracked ice. Add two teaspoonfuls of powdered sugar, shake, strain and fill with Saratoga mineral water. Similar combinations with any of the standard mineral waters may be made, the name being changed to suit.

Ginger Ale Cobbler.

Dissolve a teaspoonful of sugar in a small quantity of carbonated water, add a large slice of pineapple, fill the glass nearly full with shaved ice and then pour on as much ginger ale as the glass will hold. Decorate with fruit and serve with straws.

Coffee Sherbet.

Roast and grind one pound of Mocha coffee, place it in a French coffee pot and pour four pints of boiling water over the same. As soon as the coffee is ready, pour it into an earthen bowl, add two pounds of sugar, cover well and set the bowl in a hot water bath, stirring once in a while until the sugar is well dissolved. When the sugar is dissolved, strain the coffee, let cool, then freeze. When the ice is well frozen and just before serving, add about five small glassfuls of French cognac brandy, mix thoroughly and serve immediately.—Western Druggist.

Spineless.

"Yes," said Mrs. Twickembury, "you seldom see Mr. Twickembury without a cigar in his mouth. He's a most invertebrate smoker."—The Christian Register (Boston).

THE NEWS BUREAU OF THE PACIFIC PHARMACIST

RABIES IN CALIFORNIA.

Dr. J. C. Geiger, Chief Bacteriologist of the California State Hygienic Laboratory, has written a paper which appeared in the August issue of the California State Journal of Medicine. The writer gives the history of the spread of rabies in California with the record of seven cases. A total of 970 cases of rabies in dogs were reported for 1912. Prior to that time it was generally believed that rabies did not occur within the State of California.

Dr. Geiger recommends that all persons who have been bitten by any rabid animal or who have fresh open wounds or scratches contaminated with the saliva of rabid animals, should receive the treatment. Treatment should be begun promptly. All suspected animals should be examined for the Negri bodies, the finding of which is positive proof of the presence of rabies. Dr. Geiger mentions the opposition to the more efficient operation of the Hygienic Laboratory on the part of certain persons, presumably the "antis," who unfortunately are very abundant in the State of California.

WENZELL MEMORIAL TABLET.

A memorial tablet to the memory of the late W. T. Wenzell will be placed in the main hall of the California College of Pharmacy. The expense of placing the tablet is to be borne by popular subscription by the friends of Prof. Wenzell. Those interested should send their contributions, not to exceed one dollar, to Bruce Philip, 1410 Fruitvale Ave., Oakland, Cal. Phone Merritt 737.

W. B. Day a Member of the C. V. D. A.

At the September quarterly meeting of the C. V. D. A. (Chicago Veteran Druggists' Association) Prof. W. B. Day, ex-President of the American Pharmaceutical Association was elected Associate Member of that organization.

Bodemann After the Sluggers.

Slugs are substitution; Substitution is a felony of the highest grade, an attempt to obtain money on false pretense, a con game, and should be treated as such, especially by the drug trade, which is pledged to honesty and civic pride—in assisting the governments of city, state and nation, to stamp out dishonor and dishonesty in the way of substitution and catering to death producing narcotics.

First of all—catch the sluggers; and if you have no ordinance—get one—and slap on a fine of from $5.00 to $100.00 on everybody practicing slug substitution.—Bodemann on Telephone Sluggers.

THE WOMEN'S PHARMACEUTICAL ASSOCIATION OF THE PACIFIC COAST.

The regular August meeting of the W. P. A. P. C. was held at St. Luke's Hospital, the guest of Miss Dolsim.

The attendance was not so large as previous meetings, some of the members being away on vacations. The standing committees had no reports to offer.

The sample ballot, prepared for Oct. 9, Sec. 2, was presented and accepted by the Association, to be voted upon later.

The paper of the evening was prepared by Miss Devoto Fisher on Inhalants, and was very good.

The next meeting will be held at Mrs. R. E. White's, 416 Hayes St.

M. B. D.

BAIT IN INSECTICIDES NOT POSSESSING INSECTICIDAL ACTION IS AN INERT MATERIAL.

That flour and other ingredients of insecticides which act as bait or food to attract the insects, but do not possess insecticidal properties are inert ingredients, has been established by a decision in a case brought against "Peterman's Roach Food," under the Insecticide Act of 1910. The question arose in the seizure of 30 dozen packages of "Peterman's Roach Food" in Baltimore, Maryland, on the allegation that they were misbranded.

The misbranding was alleged because the analysis showed the product to contain certain inert substances, such as wheat flour and other substances which in themselves do not prevent, destroy, repel or mitigate insects and the names and percentages of these inert substances were not stated on the label, nor in lieu thereof did the label state the names and percentage amounts of the ingredients having insecticidal properties and the total percentage of the inert ingredients.

The Calvert Drug Company of Baltimore, in its answer to the libel, stated that the inert substances were in the nature of food or bait attractive to such insects and necessary in the preparation to induce these insects to eat or take into their mouths the other substances which do destroy insects.

The court, after hearing the arguments, entered a decree condemning the goods libeled and seized as misbranded but provided that said goods should be released on condition that the claimants file a sufficient bond that they would not sell the goods until the names and percentage amounts of each and every inert ingredient in the roach food should be stated, or in lieu thereof, the correct names and percentage amounts of each and every ingredient having insecticidal properties and in addition thereto the total percentage of inert ingredients present should be stated on the package. —U. S. Dept. Agr., Office of Information.

FOOD INSPECTION DECISION NO. 152.

Brandy.

The Board of Food and Drug Inspection is of the opinion that brandy is the alcoholic distillate obtained solely from the fermented juice of fruit, distilled under such conditions that the characteristic bouquet, or volatile flavoring and aromatic principles, is retained in the distillate.

Grape brandy is the distillate obtained from grape wine under these conditions.

Apple, peach, and other fruit brandies are similarly prepared from the fermented juices of the respective fruits.

The board is of the further opinion that so-called brandy prepared from grain, potato, or other form of industrial alcohol, or from alcohol obtained from the by-products of wine manufacture, mixed with more or less true brandy or other flavoring material, is adulterated and misbranded unless labeled to indicate its true composition.

CARL L. ALSBERG,
A. S. MITCHELL,
H. M. LOOMIS,
Board of Food and Drug Inspection.

Approved:
B. T. GALLOWAY,
Acting Secretary of Agriculture.
WASHINGTON, D. C., August 29, 1913.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.,

of The Pacific Pharmacist published monthly at San Francisco, required by the Act of August 24, 1912.

Name of— Post-Office Address.

Editor, Albert Schneider, San Francisco.

Managing Editor, Albert Schneider, San Francisco.

Business Manager, Albert Schneider, San Francisco.

Publisher, Galen Publishing Co., San Francisco.

Owner: (If a corporation, give names and addresses of stockholders holding 1 per cent. or more of total amount of stock.)

F. W. Searby, Berkeley, Calif.
Albert Schneider, San Francisco.
H. B. Carey, San Francisco.
F. I. Lackenbach, San Francisco.

Known bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities:

None.

Average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date of this statement. (This information is required from daily newspapers only.)

ALBERT SCHNEIDER, Editor.

Sworn to and subscribed before me this 22nd day of September, 1913.

(Seal.) L. H. Anderson.

(My commission expires Dec. 27, 1914.)

WOMEN'S PHARMACEUTICAL ASSOCIATION.

The regular monthly meeting of the W. P. A. P. C. was held at the home of Mrs. R. E. White on the evening of September 26. Twelve members responded to roll-call. The evening was devoted to a discussion of "prescription difficulties" and the new pharmacy laws.

Committee reports were presented. The committee on reception of lady students in colleges of pharmacy reported no lady matriculants at the College of Physicians and Surgeons, two juniors and two seniors in the Department of Pharmacy of the University of California.

Nomination of officers followed the regular business meeting. Ballots will be mailed during the month to be returned not later than the 24th of October.

FAYETTA H. PHILIP,
President.

COLLEGE ITEMS.

The California College of Pharmacy reopened after the summer vacation on September 2 with an enrollment of over one hundred students. Many improvements were made in the equipment of the college during the summer. A large lecture hall was fitted up on the second floor of the college building and the different laboratories were very much enlarged. The equipment of the analytical balance room was augmented by the addition of several fine balances from Germany.

During the first week the annual election of the student body was held at which the following officers were chosen to serve for the college year:

President—W. Frank Sedgley.
Vice-President—Gervase Gaffney.
Secretary—Clyde Stuart.
Treasurer—Carroll Wentz.

The student body has been placed on a self-governing basis, i. e., all affairs pertaining to student life are in charge of a committee of students who pass upon all infractions of rules, etc. The students affairs committee is composed of:

W. Frank Sedgley, Chairman; Louis Lengfeld, William Norton, Owen Knowlton, Clyde Stuart, Gervase Gaffney, Chas. Purdy.

The Senior Class of the college met later in the term and elected officers as follows:

President—Owen Knowlton.
Vice-President—David Kahl.
Secretary—Louis Lengfeld.
Treasurer—Robert Clark.

The officers of the Junior Class are:

President—Chas. Purdy.
Vice-President—Worthy Pickering.
Secretary—Miss Morrison.
Treasurer—Barrett Huskinson.

Frank McClish was appointed Representative to the student body of the University of California at Berkeley, while Arch Davison was elected yell leader of the student body of the College of Pharmacy.

The "Senior Seminar" is an organization of the senior class which meets once a week (Friday, 11-12 a. m.) to discuss points of general pharmaceutical interest. Under the active guidance of Dr. Schneider this has become a very interesting addition to the regular college work. The first meeting of the year was given over to a discussion of "Counter Prescribing." At the second meeting Mr. C. B. Whilden of the State Board of Pharmacy gave a most interesting lecture on "The History of Pharmacy." The officers of the Seminar are:

President—Clyde Stuart.
Vice-President—Frank McClish.
Secretary—W. Frank Sedgley.
Treasurer—Milton Duffy.

The Alumni Association of the College of Pharmacy shows its active interest in the college by providing lecturers to speak to the students on different subjects of pharmaceutical interest especially from the commercial point of view. Mr. Roy Whidden of the association is in charge of this feature. Mr. R. A. Leet of Oakland was the first to lecture this year, speaking on "The Business Side of Pharmacy from the Clerk's Standpoint."

W. F. SEDGLEY, Reporter.

PHILADELPHIA COLLEGE OF PHARMACY.

The Philadelphia College of Pharmacy opened its ninety-third session on Saturday, September 20. In the absence of the Dean, Professor Samuel P. Sadtler presided at the opening exercises.

Several important and valuable changes have been made in the curriculum for this session; of these the two most important are the addition of a Department of Bacteriology and Hygiene and the introduction of several courses in Mathematics as applied in Pharmacy, Analytical Chemistry and prescription writing.

Dr. John A. Roddy, of Jefferson Medical College, has been elected to the professorship in the Department of Bacteriology and Hygiene. In addition to the compulsory lecture and laboratory instruction in the regular course, Dr. Roddy offers a special course equipping the student to conduct examinations of sputum, throat cultures, water, milk, etc. The laboratory for this course has been equipped with new apparatus, affording all facilities for teaching the latest laboratory methods.

These additions have lengthened the course to 2,000 hours and also strengthened it over the courses at other schools of pharmacy.

The college appreciates the enthusiasm and co-operation of its alumni and friends and uses this means as a means of making it manifest.

"Is she a good musician?"

"Very. She knows when to quit."—Detroit Free Press.

A Thoughtless Spouse.

Mrs. Newlywed—I wonder why we are growing tired of each other.

Newlywed—I haven't an idea.

Mrs. N.—Yes; maybe that is the reason. —Boston Transcript.

Concerning Hair.

Hair of two kinds: Imported and Domestic. Most ladies of to-day have both. Hair is usually acquired at some period during life. It is taken on gradually and with gentlemen usually persists until the age when they have to stay away from home nights to get much needed recreation.

Hair may be fixed, fleeting or detachable. In the case of men, it is sometimes detached by the barber, either with scissors or hair renewers, or by a close member of one's family who removes it with loving fingers. In the case of women, hair is very timid and changes color on the slightest provocation.

According to the celestial system of accounting every hair is properly numbered. Therefore, if you have missed any hairs, hand in your name and address at the Celestial Hair Department, where each hair has been audited and entered in the card index system.—Life.

Insubordination.

Some years ago the Secretary of the Navy issued an order that officers should not permit their wives to live at the foreign stations to which their husbands were attached. The order was once set at naught by a Commodore who wrote to the Secretary: "It becomes my painful duty to report that my wife, Eleanor Franklin, has, in disobedience to my orders, and in the face of regulations of the department, taken up her residence at the station, and persistently refuses to leave." —Harper's.

Up-to-Date Milkman.

"What are you giving your cows now in the way of galactagogues?" asked the Irvington professor of the milkman.

"Oh," said the milkman, who has just been graduated from Purdue and is not to be stumped by any Butler College pedagogue, "their sustenance is wholly of vegetable origin; rich in chlorophyll and opulent in butyraceous qualities."

"A pint, if you please," said the professor.

"Git up," said the milkman.—Indianapolis News.

We sure need that $1.50!

PERSONALS AND TRADE ITEMS

An Essay on Men.

A little girl wrote the following composition on men:

"Men are what women marry. They drink and smoke and swear, but don't go to church. Perhaps if they wore bonnets they would. They are more logical than women and also more zoological. Both men and women sprung from monkeys, but the women sprung farther than the men."—London Opinion.

Willis H. Alpers, Ph. G., of New York, who has been prescription clerk in the Towne, Seccombe & Allison store No. 2 the past two years has taken the management of the Santa Fe pharmacy at 1033 Third street and will be pleased to have his friends call. The Santa Fe Pharmacy is owned by George T. Mallery of the Central Drug company. Mr. Alpers is a son of W. H. Alpers, famous New York chemist.

Mr. J. Van de Luyster, formerly a druggist of Maricopa, has purchased the Jones' drug store at Fellows.

It was announced a few months ago that Willard Johnson would soon open a second drug store in Kingsburg in the building vacated by the Johnson & Londquist shoe store of Kingsburg. Since then the matter has seemed to be lying dormant, but Mr. Johnson has been quietly completing his plans.

A fire in Riverdale destroyed the drug store and the Commercial restaurant, causing a loss of $6,000, and came near burning two other buildings. A brick wall and the favorable direction of the wind, coupled with strenuous work on the part of the fire fighters, saved further damage.

B. D. Tolson of Maryland came to Los Angeles recently after a trip around the world, made up his mind after ten minutes that Los Angeles was the finest city he had seen and that he would make his home here. Forthwith he deposited a large sum of money in the Globe Savings bank, rented a safety deposit box from the same bank, leased a store in New College tract from the Los Angeles Investment company and started a drug business.

Syrup White Pine Comp.

PLAIN, WITH TAR or MENTHOLATED

National Formulary Goods

WITH 6% OF ALCOHOL

Put up in neat packages to retail at 25c and 50c.
Offer your customers something that is as good
as can be made.

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Standard remedy of the world for
KIDNEY DISEASES,
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GENUINE SYLVESTER'S
HAARLEM OIL

From Haarlem, Holland
None Other Is Genuine. Look for "C. Sylvester" on the label

M. Coward, Successor to C. Sylvester
Depot, No. 270 Greenwich Street, New York

J. F. Stephenson part proprietor of one of the largest drug businesses in Los Angeles, and before his temporary retirement several years ago, owner of a string of drug stores, died aged 44 years. Stephenson was born at Hacienda in this county.

For several years he has been a leading figure in the affairs of the California Druggists' Association, and was also well known in fraternal circles, including the Elks, under whose auspices the funeral services were held. Stephenson was ill for two years with a complication of diseases and his death has not been unexpected.

J. D. Seville will act as manager for the Davis drug store of El Centro, while Mr. Miller is away for some time. He began his duties in September.

ARTISTS' MATERIALS
A. H. ABBOTT & CO.
127 N. Wabash Ave., Chicago
Artists' Materials and Drafting Supplies
Winsor & Newton's Colors, Brushes
Canvas, China Paints and Gold
White China for Decoration

PHARMACY STUDENTS
PURCHASE THE BEST
LUDY
Answers to questions Prescribed
Pharmaceutical State Boards
8vo. 303 pp.
Price $1.50 net.
JOHN JOS. McVEY
Publisher Philadelphia

Druggists' Glass Labels, Shelf Bottles and Drawer Pulls of every description. First-class workmanship.
Order from your Jobber.
Manufactured by
FAY & SHEULER
St. Louis, Mo.

Price List of The Abbott Alkaloidal Company.

Those not already in possession of this price list should write to The Abbott Alkaloidal Co., Ravenswood, Chicago, and secure a copy. It contains valuable information on values and on service, as well as most important scientific information. Get the book and keep it where it can be referred to conveniently.—A. S.

Tangerine Dessert.

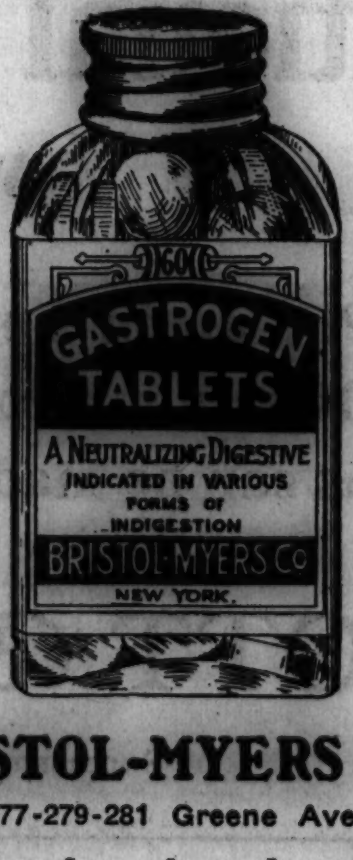
Peel a small sweet tangerine orange and separate into small sections. First place a ten-to-a-quart measure of vanilla ice cream on a saucer, then place four or five of the sections around the cream, converging towards the center at the top. Over the pieces of tangerine sprinkle grated cocoanut and cover the whole thing with whipped cream.

Santa Barbara Soda.

Juice of half an orange, juice of half a lemon, juice of half a lime. Add shaved ice and fill glass with plain soda. Sweeten to suit with powdered sugar. Garnish with slice of orange.

For Sale and Exchange—Drug Stores in 48 states. Will also furnish positions and locations for Physicians, Dentists, Pharmacists, Chemists and Veterinarians. Established 1904. Strictly reliable. Gilt edge references. **F. V. Kniest, R. P., 505 Bee B'ld'g., Omaha, Neb.**

GASTROGEN TABLETS
$4.00 PER DOZEN
Through Jobbers



BRISTOL-MYERS CO.
277-279-281 Greene Ave.
BROOKLYN, - - - NEW YORK

Mid Year Meeting of the Executive Board of the American Druggists' Fire Insurance Co.

The regular Quarterly Meeting of the Executive Board of the American Druggists' Fire Insurance Company was held on August 30th. There were present Messrs. Avery, Beal, Heinritz, Kauffman, Rothwell, Zwick and Fredericks. The Board passed on and approved of all matters and transactions which took place in the Second Quarter of the year and also gave directions looking toward the extension of the Company's business and its increased usefulness to the Drug Trade of the country. The business of the company for the first half of the year was found to show a splendid increase over the first half of the preceding year, such increase amounting to $1,276,484.29 at a premium increase of $12,955.56.

The total business for the first half of the year amounted to $6,494,615.33 at a premium of $66,620.88. The income from securities amounting to $7,211.94.

The total business in force on the first day of July amounted to $11,220,134.33 at a premium of $115,740.26. Of said total business in force there was re-insured $886,298.50 at a premium of $10,343.70.

On the first day of July the total assets of the company amounted to $326,830.75, which included Government, County and Municipal Bonds having a total value of $303,575.08. On the same day the total liabilities of the company other than Re-Insurance Reserve amounted to $5,439.33. The Re-Insurance Reserve amounted to $53,061.37. The Total Assets as shown on July 1st are after having provided for the $18,000.00 Dividend which was paid on March 1st to the stockholders of the company.

During the first half of the year the Fire Losses amounted to $26,009.35. The total expenses amounted to $21,474.83. The total amount of business re-insured during the same period was at a premium of $7,408.51.

The Company saved its policyholders during the first six months of the year in premium cost the sum of $22,206.96.

At its August meeting the Executive Board also approved the purchase of $6,000.00 Non-Taxable Cincinnati Bonds, which was made in July, and authorized the purchase of an additional $5,000.00 of Cincinnati Bonds.

Did Not Take It.

Sandy MacIvor was "no feelin' just well," so he went to the doctor, says the Newark Star.

"What do you drink?" demanded the medico.

"Whisky."

"How much?"

"Maybe a bottle a day."

"Do you smoke?"

"Yes."

"Well, you give up whisky and tobacco altogether."

Sandy took up his cap, and in three steps reached the door.

"Here!" called the doctor, "you have not paid for my advice!"

"Ahm no takin' it," snapped Sandy, as he shut the door behind him.

A famous Ohio humorist says that a new-rich family in Cleveland, who were beginning to put on a lot of airs, hired a colored girl just arrived from the South to act as their serving maid. Her new mistress insisted that all meals should be served in courses. Even when there wasn't very much to eat it was brought to the table in courses.

At the end of a week the girl threw up her job. Being pressed for a reason for quitting so suddenly, she said:

"I'll tell you lady—in dis yere house dere's too much shiftin' of de dishes fur de fewness of de vittles."

W. E. Calahan and George Keller of Pittsburg, who are operating a chain of drug stores in this county, will, in the near future, open a fine store in Richmond. Fred LeMoine, at present manager of the Martinez Drug Company, is to have charge of the new place and it is probable that Mr. Keller will take the management of the county seat store.

W. M. English, manager of the Coachella Drug Co. of Thermal, closed a deal whereby that business passes out of the hands of himself and his partner J. E. Johnson, and becomes the property of Fred M. Swartz.

Drug Store Exchange.

Having established a Drug Store Exchange, I offer my services to my clients in finding a buyer for a business or a business for a buyer. I have a good list of Drug Stores for Sale and adding more daily. Also a list of prospective buyers which I am trying to satisfy. Five years in the Drug Trade in California.

F. A. WECK,
501 Third Avenue, San Francisco.

A Convenient Portable Fuel

for camping parties, prospectors, hunters, for the sick-room, nursery, ladies' boudoirs, for offices, laboratories, etc.

How to Use

Place the cube on any non-combustible substance and light with match. When through, blow out.

No Smoke, No Soot

Cub-Al-Co

Solidified Alcohol

In Small Cubes, Ready for Use

Manufactured by the

SAN FRANCISCO CUBE ALCOHOL CO.

Prices:

Single Can........................25 Cents
One Dozen Cans......................$2.00
In Gross Lots, per Dozen...........$1.70

Send All Orders to

723 Pacific Building,

San Francisco, Cal.

One Cube Will

Cook one or two eggs, two cubes will fry bacon and eggs or a chop, etc. One of the cheapest and most convenient fuels in existence.

The heating value of the cube is equal to about 90% alcohol, weight for weight.

25 Cubes in Each Can

Denatured alcohol is used, therefore not to be used for any other purpose than the one herein declared.

Glyco-Thymoline

TRADE MARK

Registered in U. S. Patent Office.

In Use Nineteen Years.

Three Sizes—ONE POUND—SIX OUNCE (Sprinkler Top)—THREE OUNCE
Retail Price—ONE DOLLAR—FIFTY CENTS—TWENTY-FIVE CENTS

THIS TRADE MARK IS THE PROPERTY OF

Kress & Owen Company

361-363 PEARL ST., NEW YORK

PRICE CHANGES: The fluctuations of the month have again taken the form of advances to a greater extent than reductions. CITRIC ACID records advances aggregating 7c, on account of shortage in Citrus Fruit crops, both domestic and foreign. In sympathy, "Citrates" also marked up 6c. GLYCERIN is 2½c higher on account of active demand and scarcity of crude. BALSAM TOLU advanced 10c, RUSSIAN CANTHARIDES 35c, LAVENDER FLOWERS 7c, FALSE UNICORN 10c, CREAM TARTAR ½c. COCAINE 50c, higher on anticipated heavy duty. SPANISH ERGOT declined 2c, CELERY SEED 15c, LARKSPUR 30c, PARSLEY SEED 10c. COD LIVER OIL, lower prices looked for on account of removal of present $4.50 per bbl. duty. LYCOPODIUM is 4c higher, RED ROSE LEAVES 10c, GOLDEN SEAL 40c, IPECAC 10c. TARTARIC ACID, ROCHELLE SALTS and SEIDLITZ MIXTURE each 1c higher on active demand. MENTHOL declined 50c, SHORT BUCHU 7c, LONG BUCHU 5c, AMERICAN SAFFRON 5c, BALSAM PERU 5c. In ESSENTIAL OILS the changes are few. The advances are ORANGE 10c, PEPPERMINT 50c, TANSY 25c, CITRONELLA 10c. The declines are ERIGERON 25c, WORMSEED 25c, LEMON 40c. Increased cost of Corn and unfavorable crop reports is the cause of a 5c advance in ALCOHOL. CARBOLIC ACID, CHLOROFORM, SQUILLS, LOBELIA, show weakening tendency. NITRATE SILVER and CUTTLE BONE slightly higher. TURPENTINE advanced 3c.—L. & M.

A stranger entered the **Mateer Drug Store,** and presented a prescription calling for thirty ounces of morphine. The first thing which excited the suspicions of the young man who waited on the stranger was the unusual size of the order. The next was the signature of Dr. H. S. Gordon. This did not look right to Mr. Mateer, and he lost no time in comparing it with the genuine signature of the doctor, several examples of which are on hand in the store. The stranger was turned over to Constable Jackson, who was soon on the spot, and landed in jail.

Tea Punch Variation.

Make up four quarts of ordinary breakfast tea; add three lemons and one orange, sliced. Sweeten to suit. Place in a bowl and add a large block of pure ice. Serve in tall glasses. This is a variation of iced tea, but a great drink, and a different way of serving never hurts.

THE
JAMES H. BARRY COMPANY
Incorporated

THE STAR PRESS

Printers and Publishers

Book Binding,
Designing,
Photo Engraving

We print.......
The Pacific Pharmacist

1122-1124 Mission Street, San Francisco

Phone Park 6380

GROWTH IN THE USE OF BACTERIAL VACCINES.

Treatment of infectious diseases with preparations derived from corresponding micro-organisms is unquestionably growing in favor with the medical profession. Not only do the bacterial vaccines seem destined to a permanent place in therapeutics, but their field of applicability is constantly broadening. Proof of this is seen in the latest list of these products announced by Parke, Davis & Co., no less than seventeen of the vaccines now being offered.

There are a number of reasons for the favor which is being accorded these agents. In the first place, bacterial vaccines are in consonance with the scientific trend of present-day medication. They are being used with a gratifying measure of success. The method in which they are marketed (sterile solutions in hermetically sealed bulbs and in graduated syringes ready for injection) appeals to the modern medical man: it assures both safety and convenience. The vaccines and their prices are announced elsewhere in this journal over the signature of Parke, Davis & Co. They will repay a careful scrutiny.

MR. WALRUS SAYS

MY 1914 LINE OF

Walrus Soda Fountains

will embody Three Distinct Grades of Construction, Arrangement and Materials, namely:

THE EITHERWAY. An Absolute Sovereign. No other make of Apparatus nearly approaches it. Syrup Lifts Guaranteed a Life Time.

THE COMMONER. Just like all others are offering, only we make it better and sell it for less.

THE WONDER. Far ahead of anything in its class. Made for the man who requires a good but inexpensive outfit.

Send for Catalogs

WALRUS MANUFACTURING COMPANY

DECATUR, ILLINOIS

Largest Builders and Distributors of Soda Fountains Through Jobbers

Agencies in all principal cities

A number of active selling specialties for the **winter months** are mentioned in **Langley & Michaels Company's** advertisement on another page of this issue of the Pacific Pharmacist. These should be of particular interest to the druggist as the special quantity terms are so liberal as to allow a very unusual profit for this class of goods.

Orange Mint.

Into a twelve-ounce optic glass draw one and one-half ounces of spearmint syrup, add an ounce of grape juice and one-third of a glass of fine ice. Fill with carbonated water, mix, and decorate with a slice of orange and a sprig of mint.

Miss Ancient Wantiman (suddenly awakening)—I see you have my pocketbook; but there's very little money in that compared with what I have in the bank.

Burglar (gruffly)—Well, there ain't no way to git that!

Miss Ancient Wantiman—H'm! Are you a single man?—Puck.

Russian Cooler.

Fill tall glass with shaved ice and pour in as much fresh cold tea as glass will accommodate. Take a spray of mint and bruise it with lumps of sugar, which will impregnate the sugar slightly with the mint flavor. Sweeten the tea with these lumps of sugar, and crown the glass with a spreading bunch of fresh mint.

Don't Risk It!

They walk beneath a ladder,
Without becoming sadder;
They sit thirteen at table
As often as they're able,
They spill the salt—these fellers—
From coffin-shaped salt-cellars,
Served by a cross-eyed waiter—
Which makes the risk the greater;—
Green tie and peacock's feather
They dare to wear together;
A funeral approaches,
They run between the coaches.
Who do? Who do?
Maybe you do. Fools do.
Trifle not with a hoodoo!

—Addison F. Andrews.

Chocolate Buttermilk.

Put an ounce of chocolate syrup in a phosphate glass, fill the glass with ice-cold buttermilk and stir with a spoon until mixed.

Examine Your Stock

of

Mulford

Antitoxins

Bacterins

Vaccines

and send your order to complete assortment

AT ONCE

The demand for Antitoxins, Bacterins, and Vaccines is most active in the fall and early winter months. Don't be caught short of stock. We have up-to-date literature to help you take full advantage of our advertising and sales work. We are believers in cooperation. GET YOUR SHARE of the biological business.

Our special proposition is well worth writing for

H. K. MULFORD COMPANY

Pharmaceutical and Biological Chemists

PHILADELPHIA

New York
St. Louis
Kansas City
New Orleans
Chicago
Atlanta
Toronto
Seattle
San Francisco
Minneapolis

California College of Pharmacy

Department of Pharmacy, University of California

(Incorporated 1872. Affiliated with the University of California 1873)

Laboratories

Chemistry **Botany and Pharmacognosy** **Pharmacy**

Bacteriology

Faculty

F. T. GREEN, Ph. G., Professor of Chemistry, Director of the Chemical Laboratory, and Dean.

ALBERT SCHNEIDER, M. D., Ph. D., Professor of Economic Botany, Pharmacognosy and Bacteriology.

HENRY B. CAREY, B. S., M. D., Professor of Botany, Materia Medica and Physiology.

F. W. NISH, Ph. G., Phar. B., Professor of Pharmacy and Director of the Pharmaceutical Laboratory.

H. M. SIMMONS, Ph. G., M. D., Associate Professor of Pharmacy and Materia Medica and Lecturer on Toxicology.

H. R. WILEY, LL. B., Lecturer on Pharmaceutical Jurisprudence.

JAMES N. PATTERSON, Ph. C., Phar. B., Assistant in the Chemical Laboratories.

ARTHUR REUM, Ph. B., Assistant in Pharmacognosy and Bacteriology.

R. A. LEET, VAL SCHMIDT and FRANKLIN C. SMITH, Lecturers on the Business Side of Pharmacy.

Admission—Two years of high school work or its equivalent are required to enter upon the regular college course (Ph. C. degree).

Degrees—Pharmaceutical Chemist (Ph. C.) on completion of the two years' course. Bachelor of Pharmacy (Phar. B.) on completion of the three years' course.

NEXT TERM WILL OPEN SEPTEMBER 5, 1914.

Course in Drug and Food Analysis

Open to graduates and others who are properly qualified. The course is intended to prepare the candidate sufficiently to make chemical and microscopical examinations of drugs, drug products and foods in compliance with the Federal and State pure food and drug laws. Drug assaying and other chemical work, the microscopical examination of drugs, spices and food products, and the bacteriological testing of pharmaceutical preparations, water, milk, etc., are among the subjects taught. Those who complete the course are qualified to do work in food and drug laboratories.

The next course will begin September 11, 1914, and end April 30, 1915.

For further information, address FRANK T. GREEN, Dean.

CALIFORNIA COLLEGE OF PHARMACY,
Affiliated Colleges, San Francisco.

Founded 1818
Powers - Weightman - Rosengarten Co.
MANUFACTURING CHEMISTS
New York PHILADELPHIA St. Louis
QUININE SULPHATE MORPHINE SULPHATE CODEINE
Strychnine Iodoform Strontium Bromide Thymol Iodide
Bismuth Subnitrate Iodine Resublimed Ether Nitrous Concentrated
White, Bulky, Tasteless Potassium Iodide In Hermetically Sealed Glass Tubes
ETHER, U. S. P., FOR ANAESTHESIA
COMPLETE LIST ON REQUEST
SPECIFY P-W-R ORIGINAL PACKAGES.

Hints on Advertising

I. The Psychology of Advertising

Every successful advertisement is governed by the following fundamental psychological principles.

1. **Attracting the attention.**
2. **Drawing the attention to something definite.**
3. **Holding the attention.**

There are a thousand and one things that will attract the attention, as a train wreck, a house on fire, a murder, a cyclone, a mad dog, two sick lovers, a slit skirt on Main street, a cannon shot, a painting, a brass band, etc., etc.

That which is intended to *attract* the *attention* in *advertising* should be harmoniously suited to the article it is desired to advertise. A mad dog at the entrance to your place of business attracts attention but will not bring you increased business.

Having attracted the attention, next direct the attention to something definite, which, of course, is the article you desire to sell. In fact, in the ordinary advertising, that which attracts the attention should also attract the attention to the article offered for sale.

Lastly, the descriptive wording of the advertisement must be of such character as to hold the attention from beginning to end. Therefore, make the *ad attractive, concise, brief, and to the point.* Omit all *detractions,* all *unnecessary words,* and all *unimportant details.* Tell the public in a few well chosen words what you have and what it is for.

A POCKET CYCLOPEDIA OF

PRACTICAL MEDICINE AND SURGERY

Second Edition. Revised. Thoroughly Modern Reference Book.

By DRS. GEORGE M. GOULD and W. L. PYLE. Revised by R. J. E. SCOTT, M. A., B. C. L., M. D., New York.

Thin 64 mo., 618 Pages. Full Limp Morocco, Gilt Edges, Round Corners, $1.00; Thumb Indexed, $1.25.

"To all who want a pocket medical cyclopedia this handy little volume will prove very useful. It certainly is cram full of very well selected matter, no space is wasted, and every line is made to tell."—*The Hospital, London.*

PUBLISHERS

P. BLAKISTON'S SON & CO.

1012 WALNUT STREET :: :: :: :: :: :: :: :: PHILADELPHIA

American Medico-Pharmaceutical League.

Sixteenth year. First Medical Society in America to cooperate with pharmacists. Membership dues, $2 per annum. All reputable physicians, dentists and pharmacists are eligible. Eugenie R. Eliscu, M. D., treasurer, New York City; Samuel F. Brothers, Ph. G., M. D., executive member and corresponding secretary, 96 New Jersey Avenue, Brooklyn, N. Y.

"Why do you suppose he has such a vacant expression?"

"Well, he thinks of himself a good deal."—Judge.

Crown Headache Powders

Trade Mark Registered

Washington, D. C. Sacramento, Cal.

TRADE MARK

QUICK SELLER and GOOD PROFIT

Ask your Jobbers for Special Prices on ½-Gross Quantity with Free Goods. 10 cent and 25 cent sizes

F. A. WECK, Manufacturing Pharmacist
San Francisco, Cal.

The Acknowledged Leader

We're advertising Lenox Chocolates in a way that means more business and bigger profits to you, if you handle them. More than 25,000,000 people read the Lenox Chocolate advertisements every month. Discriminating candy lovers, in nearly every city, town and hamlet in the country are being influenced by this persistent advertising. It's sure to bring the customers to your store for Lenox Chocolates. And once they see the attractive boxes and taste the inimitable flavors of these rare creations, they'll be back for more—for Lenox Chocolates have the real "come-back" qualities.

Lenox Chocolates

are made of the purest ingredients in the largest, best equipped confectionery establishment in America, where the most scrupulous regard for cleanliness, in every stage of their manufacture, is rigidly exercised. Lenox Chocolates are packed in attractive pound and half-pound boxes, which contain an irresistible assortment of fruits, nuts, caramels, nougat and delicately flavored creams, daintily covered by a rich coating of chocolate. There has always been a tremendous demand for a superfine chocolate confection at popular prices and, through years of advertising, Lenox Chocolates have achieved this distinction to the highest degree.

Are you a Lenox Chocolate dealer?
If not at your jobber's, write us.

Trade Mark REG. U.S. PAT. OFF.
Necco Sweets
New England Confectionery Co. Boston

New England
Confectionery Co.

Boston, Mass.

Makers of the famous line of Necco Sweets.

OVER 65 YEARS' EXPERIENCE
PATENTS
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DESIGNS
COPYRIGHTS &C.
Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. HANDBOOK on Patents sent free. Oldest agency for securing patents.
Patents taken through Munn & Co. receive *special notice*, without charge, in the
Scientific American.
A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, $3 a year; four months, $1. Sold by all newsdealers.
MUNN & Co. 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

Drug Store Exchange

Drug Store, good location—elegant fixtures for sale under cost, or will consider an exchange for a good drug business in the country. Owner anxious to get out of city.

Drug Store, San Francisco, good business corner; clean stock. Owner must sell on account of ill health.

Drug Store, San Francisco—A nice business, well located, clean stock; will stand investigation.

Apply F. A. WECK, P. P.,
50 Third Ave. (Richmond Dist.),
San Francisco, Cal.

E. E. Johnson, formerly proprietor of the Red Cross drug store, died at Pacific Grove. After leaving here he opened a drug and stationery store in San Mateo, but failing health forced his retirement last August. Mr. and Mrs. Johnson were residents of this city for years, and have many warm personal friends here.

"Do you obey the Bible injunction to love your neighbor?"

"I try to, but she won't let me."—Jester (Columbia).

WRITE FOR SPECIAL PROPOSITION
ON
DR. DANIELS' MEDICINES
FOR
HORSES, CATTLE, SHEEP
SWINE, DOGS AND CATS
Best Advertised, Best Sellers, Good Profit
Satisfaction Guaranteed
DR. A. C. DANIELS, Inc., 172 Milk Street, Boston, Mass.
A. T. ROCHE & CO., San Francisco, Cal.
Agents for Pacific Coast

We want the name of every young man who is ambitious to
BE A LAWYER
and we want to hear from every business man who wishes that he knew BUSINESS LAW.
Write today and let us tell you how we have made lawyers out of hundreds of young men just like you, and equipped business men with a legal training that has been of immense benefit to them. This School, founded 23 years ago, has graduates who have passed bar examinations in every state in the U. S. Courses endorsed by Bench, Bar, and Business men.
STUDY LAW AT HOME
Learn about (1) our Complete College Law Course which fits for practice, and (2) our Complete, Practical, Business Law Course for Business Men. Find out about the low cost, and see how easily you can obtain a thorough knowledge of the Law while continuing your present work. Easy Terms!
Send today for handsome catalog and list of successful graduates all over the U. S. who grasped their opportunity by once answering an ad. like this!
THE SPRAGUE CORRESPONDENCE SCHOOL OF LAW
401 American Building, Detroit, Mich.

Langley & Michaels Company recently published a very complete **Hot Drink Supply Catalog** for the soda fountain which should prove of value to such dealers as maintain a department of this nature. This booklet gives the latest special offers of the various prominent manufacturers together with a fund of other information relating to Hot Drink Supplies in general. Copies may be had for the asking.

Prospective purchasers of Soda Fountains should make it a point to inspect the **Walrus** recently installed in the new **Foster & Orear Confectionery** which is situated on Grant avenue in the center of the high-class shopping district of this city. This outfit in many features is quite different and distinct from any fountain heretofore installed on this Coast, and the unusual beauty of design, the excellence of material and workmanship is probably without a competitor in this city. This new candy establishment in the artistic elegance of fixtures and decorations is a "show place," and probably has no peer in the West. The Walrus Fountain, which was supplied by Langley & Michaels Co., is in all respects in keeping with its surroundings and is the subject of constant favorable comment.

Pineapple Delight.

Into a ten-ounce glass put half an ounce of pineapple juice, and half an ounce of simple syrup. Fill the glass with shaved ice, mix well, put in a small slice of pineapple and over it a scoopful of orange sherbet, then a sprig of fresh mint and cherry.

"FAULTLESS"

Rubber Goods—All Kinds

We Are Agents and Distributors for

THE FAULTLESS RUBBER CO.

of

Ashland, Ohio

We carry in stock and can supply at Manufacturers' Prices all goods of the "Faultless" make.

We believe that we are in a position at all times to give the Drug trade one hundred cents worth of Rubber Goods for one dollar.

Now is the time to order for Fall and Winter needs.—Hot Water Bottles, Fountain Syringes, Gloves, Etc.

COFFIN REDINGTON CO.

San Francisco, California

Bacterial Vaccines

These scientific products are coming into extensive use in the treatment of bacterial diseases. We are actively promoting them among the medical profession. Are you prepared to supply them?

Acne Vaccine.
Acne Vaccine, Combined.
Colon Vaccine.
Combined Bacterial Vaccine (Van Cott).
Furunculosis Vaccine.
Gonococcus Vaccine.
Gonorrheal Vaccine, Combined.
Meningococcus Vaccine (Prophylactic).
Pertussis Vaccine.
Staphylococcus Vaccine, Albus.
Staphylococcus Vaccine, Aureus.
Staphylococcus Vaccine, Citreus.
Staphylococcus Vaccine, Combined.
Streptococcus Vaccine.
Urethritis Vaccine, Combined.

LIST PRICES OF ALL VACCINES NOTED ABOVE
(SUBJECT TO DISCOUNT).

Rubber-stoppered glass bulbs of 1 Cc.,	package of four,	$1.00
Graduated syringe containers,	package of four,	2.00
Graduated syringe container,	package of one,	.50

Typhoid Vaccine (Prophylactic).
Typhoid-Paratyphoid Vaccine (Prophylactic).

LIST PRICES OF TYPHOID AND TYPHOID-PARATYPHOID VACCINES
(SUBJECT TO DISCOUNT).

Rubber-stoppered glass bulbs of 1 Cc.,	package of three,	$0.75
Graduated syringe containers,	package of three,	1.50
Graduated syringe container,	package of one,	.75
Hospital package,	30 bulbs,	3.50

Specify "P. D. & Co." on orders to your jobber.

Home Offices and Laboratories,
Detroit, Michigan.

Parke, Davis & Co.